Fig.1 (a)

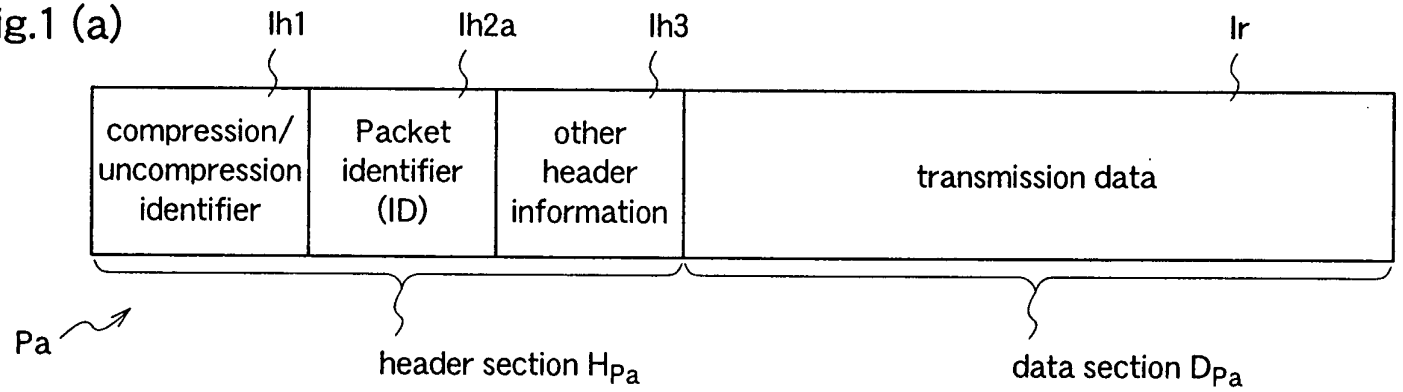

lh1
lh2a
lh3
lr
compression/ uncompression identifier
Packet identifier (ID)
other header information
transmission data
Pa
header section H_{Pa}
data section D_{Pa}

Fig.1 (b)

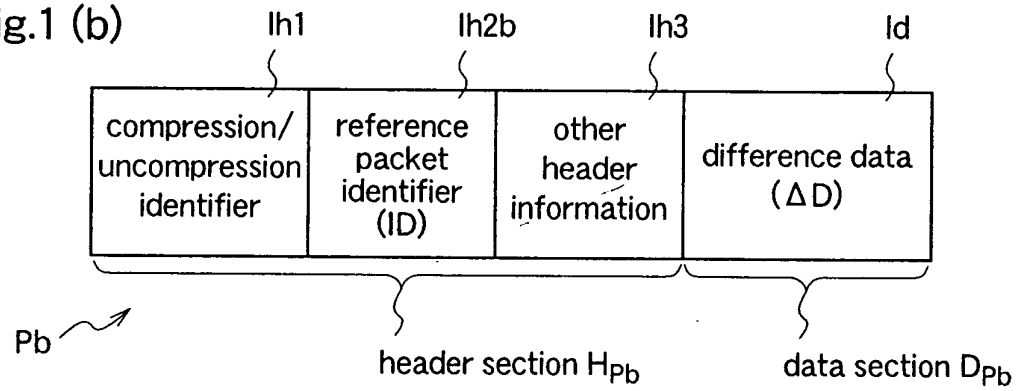

lh1
lh2b
lh3
ld
compression/ uncompression identifier
reference packet identifier (ID)
other header information
difference data (ΔD)
Pb
header section H_{Pb}
data section D_{Pb}

Fig.2

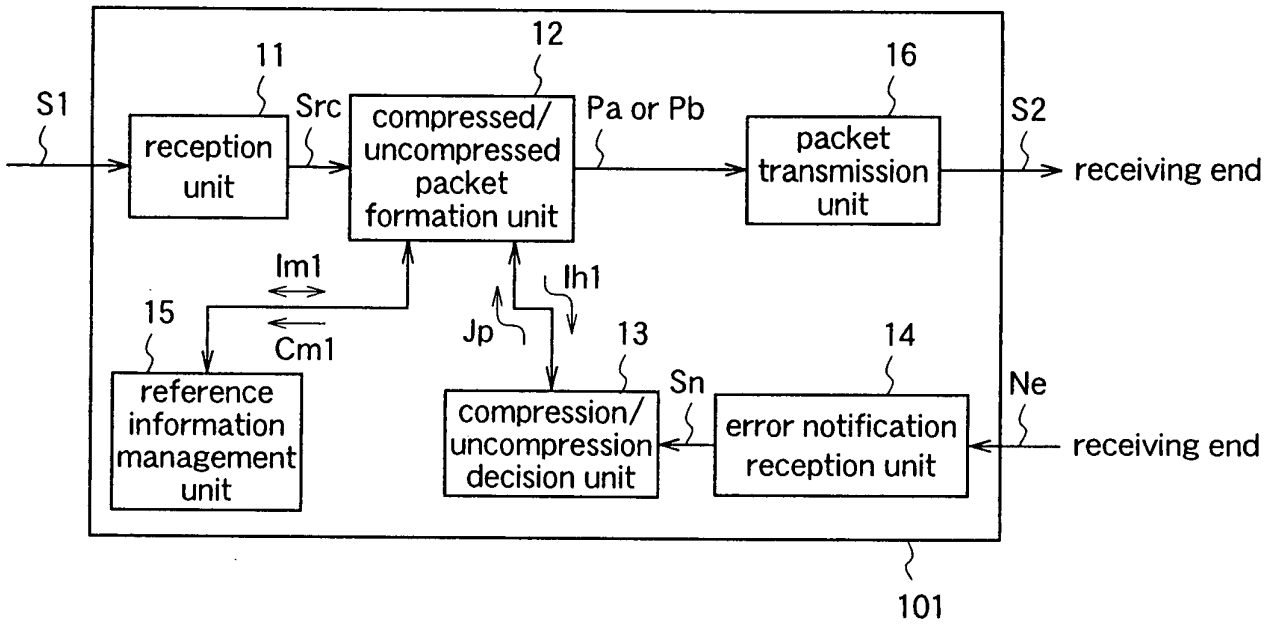

S1
11
reception unit
Src
12
compressed/ uncompressed packet formation unit
Pa or Pb
16
packet transmission unit
S2
receiving end
Im1
Cm1
15
reference information management unit
Jp
Ih1
13
compression/ uncompression decision unit
Sn
14
error notification reception unit
Ne
receiving end
101

Fig.3

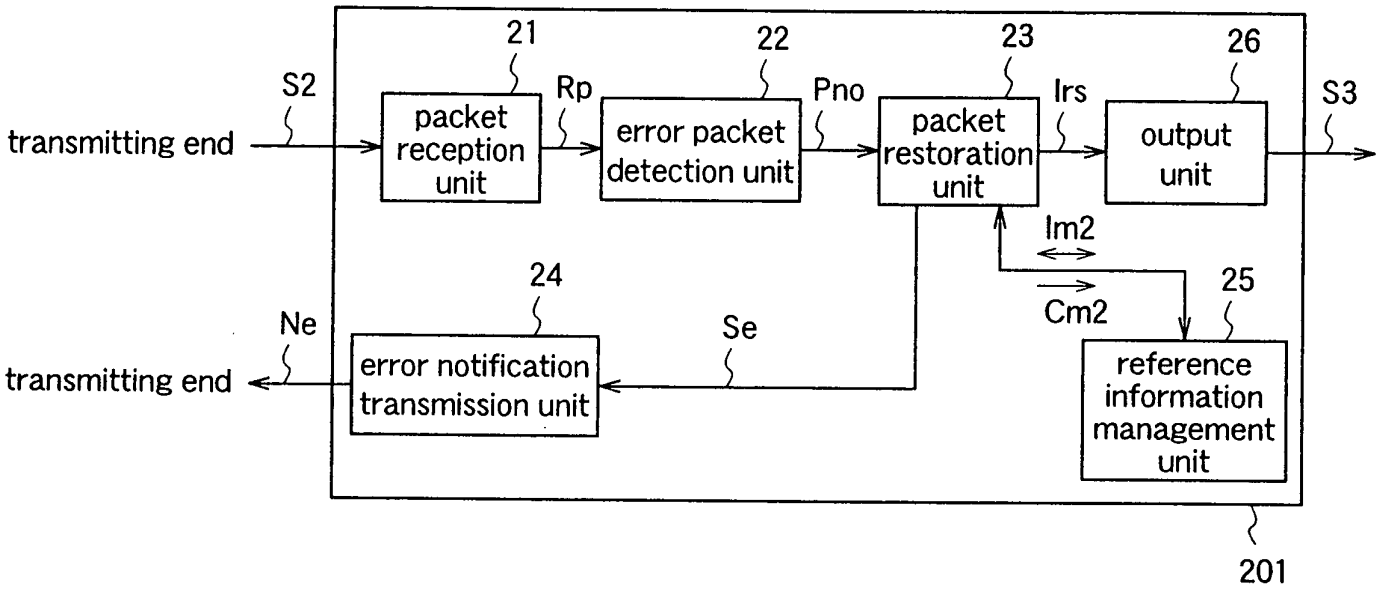

transmitting end
S2
21
packet reception unit
Rp
22
error packet detection unit
Pno
23
packet restoration unit
Irs
26
output unit
S3
Im2
Cm2
25
reference information management unit
24
error notification transmission unit
Se
Ne
transmitting end
201

Fig.4

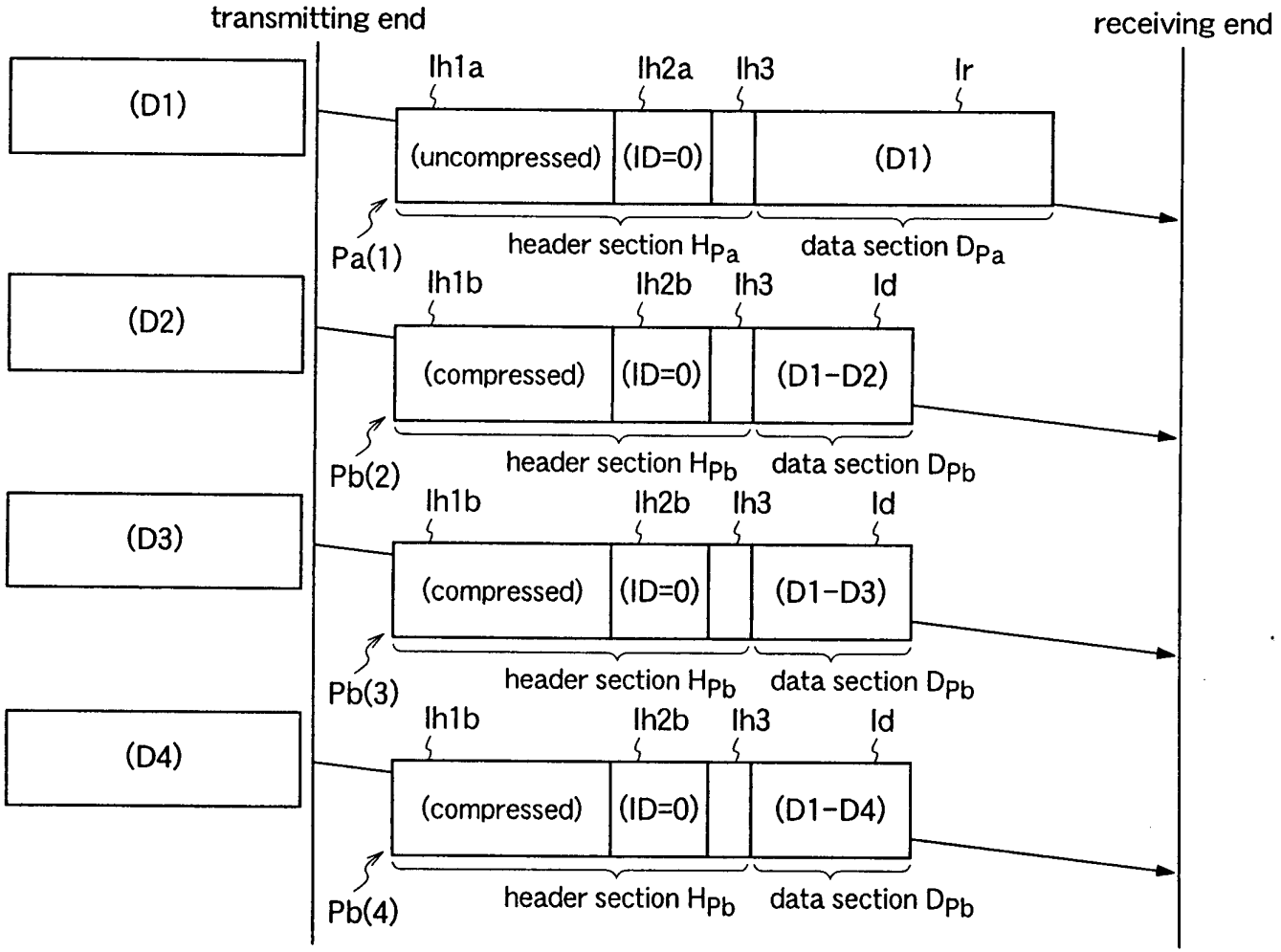

transmitting end
receiving end
(D1)
(D2)
(D3)
(D4)
Ih1a
Ih2a
Ih3
Ir
(uncompressed)
(ID=0)
(D1)
Pa(1)
header section H_{Pa}
data section D_{Pa}
Ih1b
Ih2b
Ih3
Id
(compressed)
(ID=0)
(D1-D2)
Pb(2)
header section H_{Pb}
data section D_{Pb}
(D1-D3)
Pb(3)
(D1-D4)
Pb(4)

Fig.5

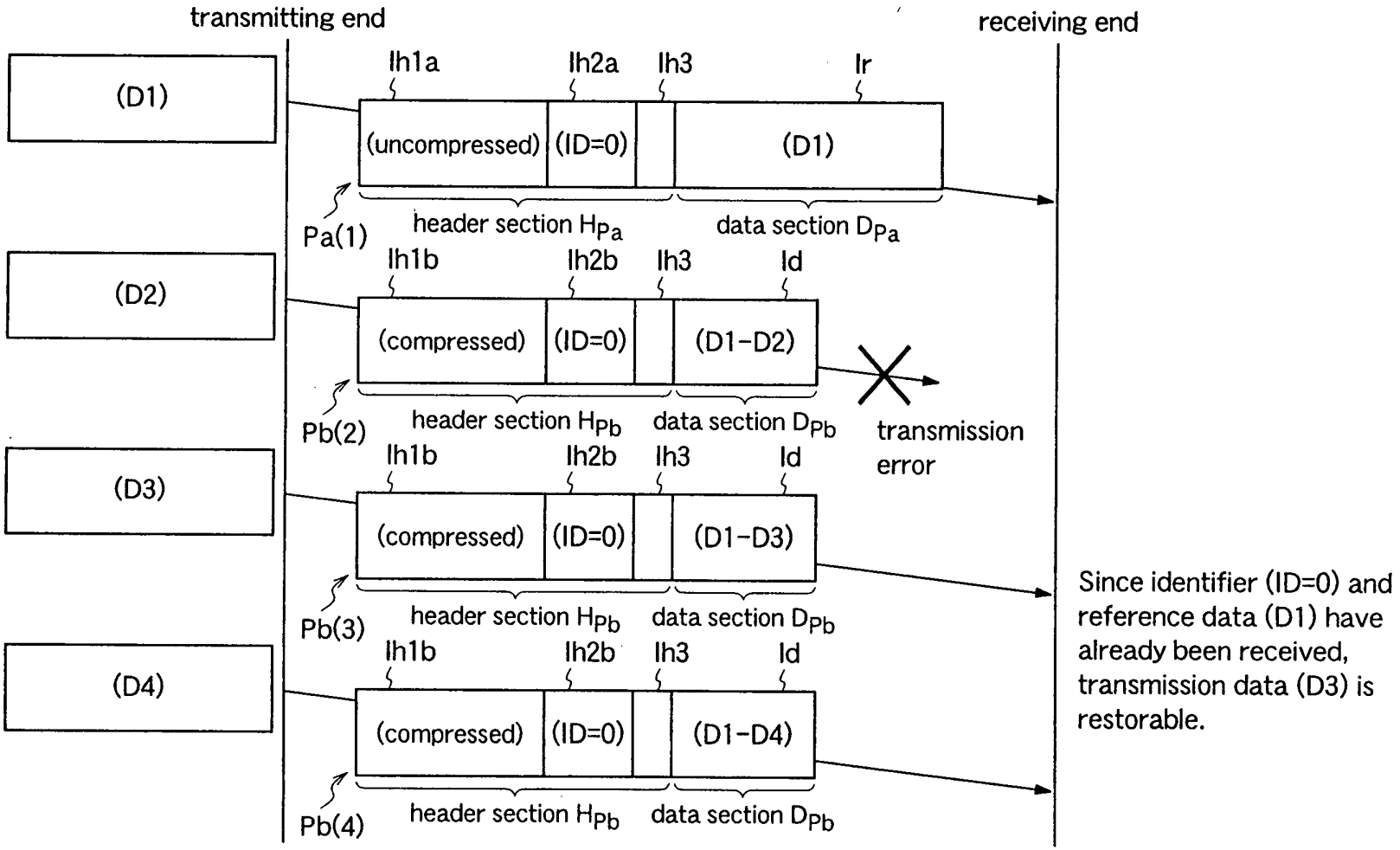

transmitting end
receiving end
(D1)
(D2)
(D3)
(D4)
Ih1a
Ih2a
Ih3
Ir
(uncompressed)
(ID=0)
(D1)
Pa(1)
header section HPa
data section DPa
Ih1b
Ih2b
Ih3
Id
(compressed)
(ID=0)
(D1-D2)
Pb(2)
header section HPb
data section DPb
transmission error
(D1-D3)
Pb(3)
(D1-D4)
Pb(4)
Since identifier (ID=0) and reference data (D1) have already been received, transmission data (D3) is restorable.

Fig.6

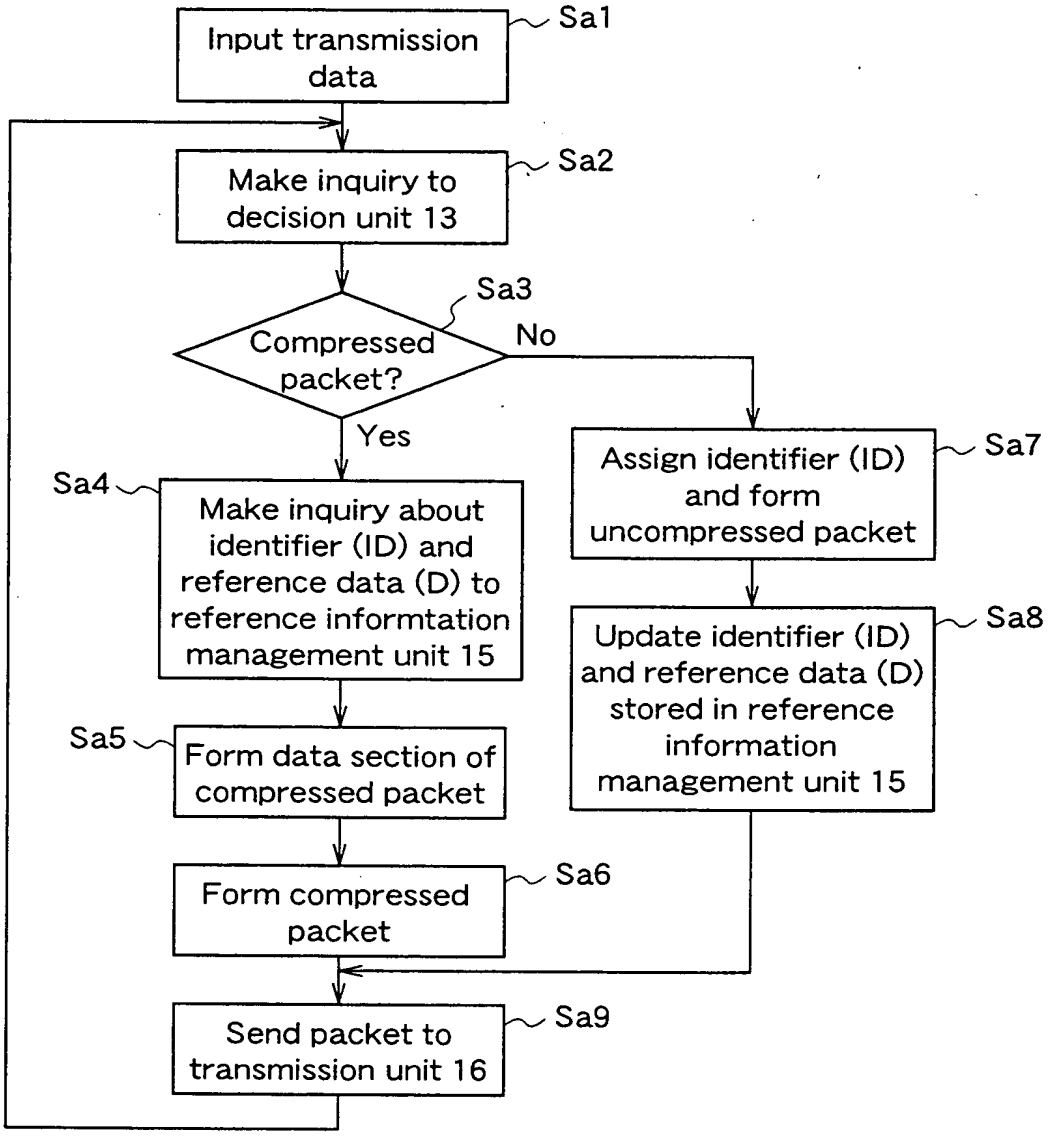

Input transmission data
Sa1
Make inquiry to decision unit 13
Sa2
Compressed packet?
Sa3
No
Yes
Assign identifier (ID) and form uncompressed packet
Sa7
Sa4
Make inquiry about identifier (ID) and reference data (D) to reference informtation management unit 15
Update identifier (ID) and reference data (D) stored in reference information management unit 15
Sa8
Sa5
Form data section of compressed packet
Form compressed packet
Sa6
Send packet to transmission unit 16
Sa9

Fig.7

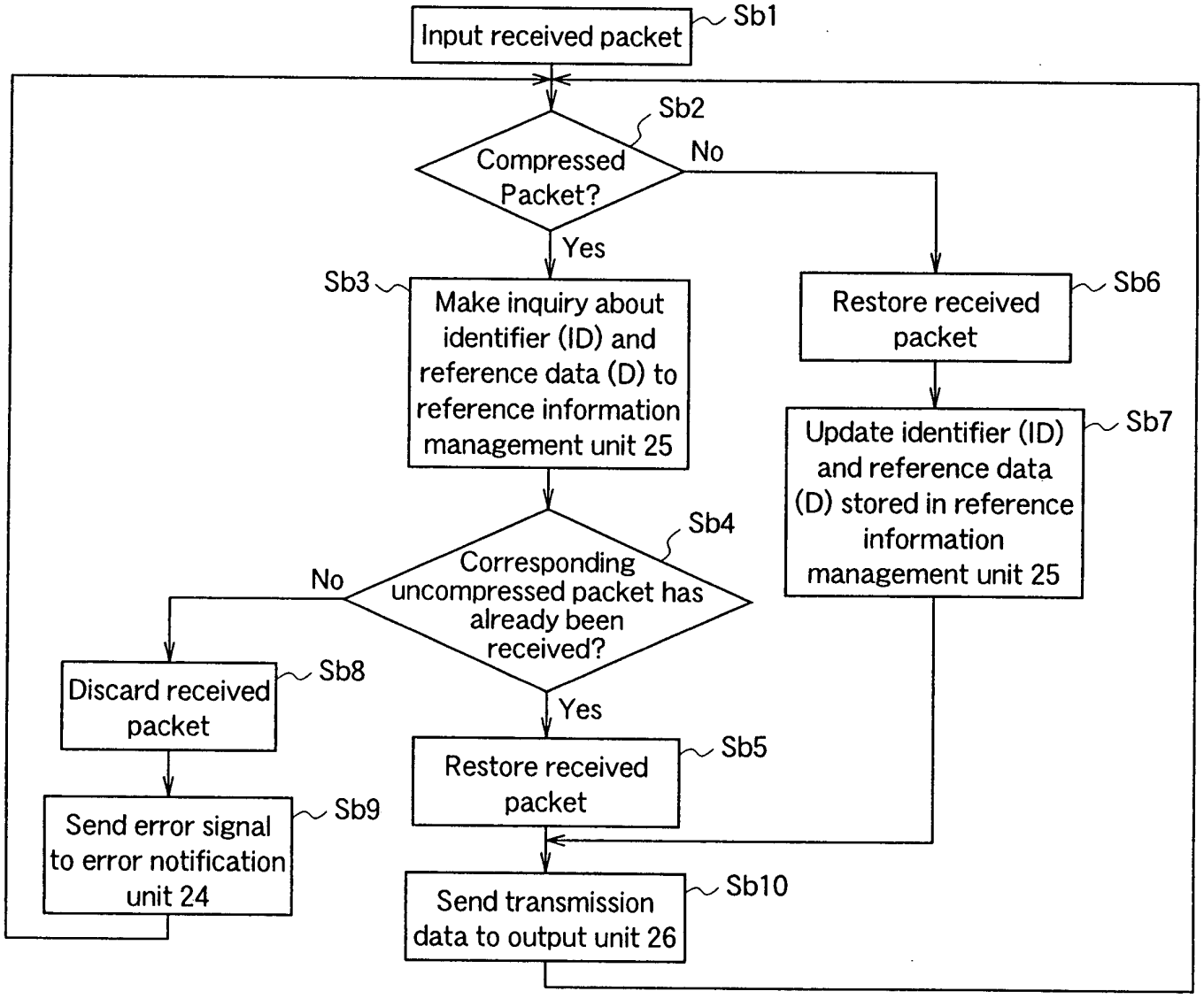

Input received packet
Sb1
Sb2
Compressed Packet?
No
Yes
Sb3
Make inquiry about identifier (ID) and reference data (D) to reference information management unit 25
Sb6
Restore received packet
Sb7
Update identifier (ID) and reference data (D) stored in reference information management unit 25
Sb4
Corresponding uncompressed packet has already been received?
No
Yes
Sb8
Discard received packet
Sb9
Send error signal to error notification unit 24
Sb5
Restore received packet
Sb10
Send transmission data to output unit 26

Fig.8 (a)

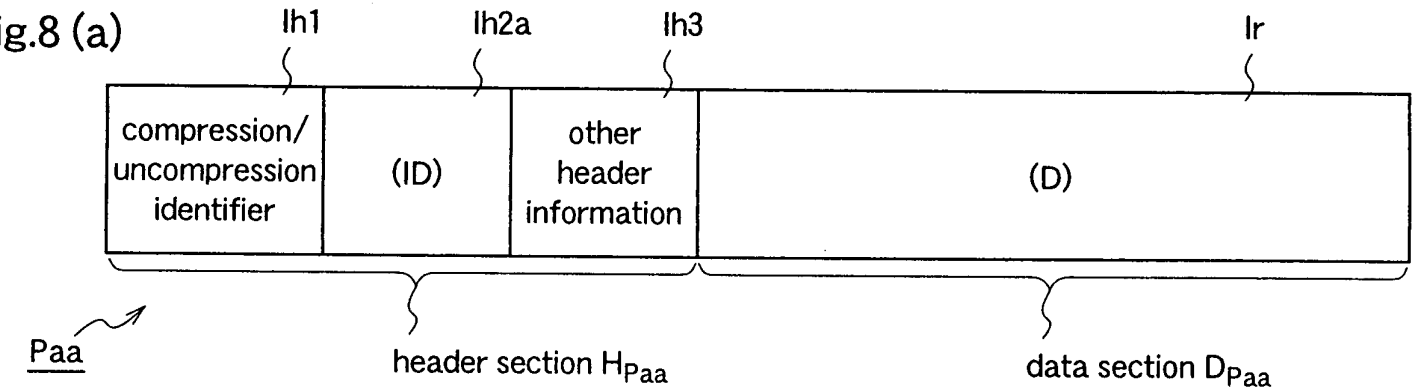

lh1
lh2a
lh3
lr
compression/ uncompression identifier
(ID)
other header information
(D)
Paa
header section H_{Paa}
data section D_{Paa}

Fig.8 (b)

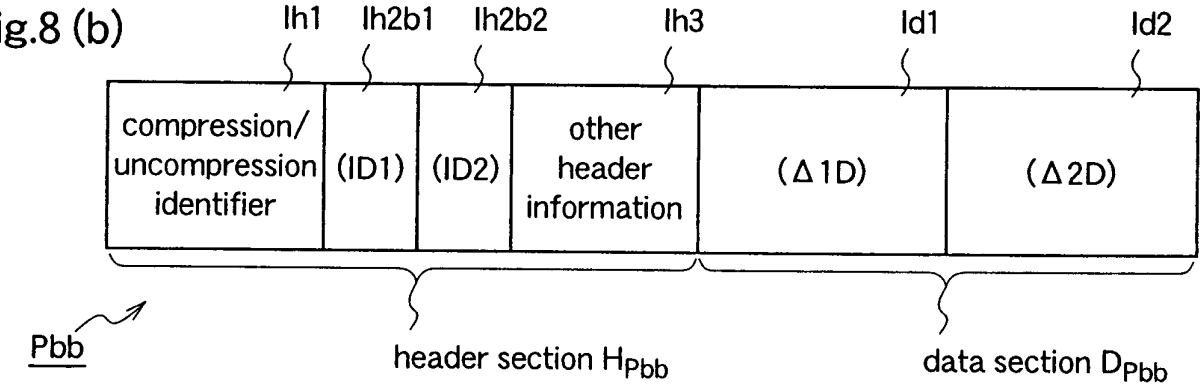

lh1
lh2b1
lh2b2
lh3
ld1
ld2
compression/ uncompression identifier
(ID1)
(ID2)
other header information
(Δ1D)
(Δ2D)
Pbb
header section H_{Pbb}
data section D_{Pbb}

Fig.9

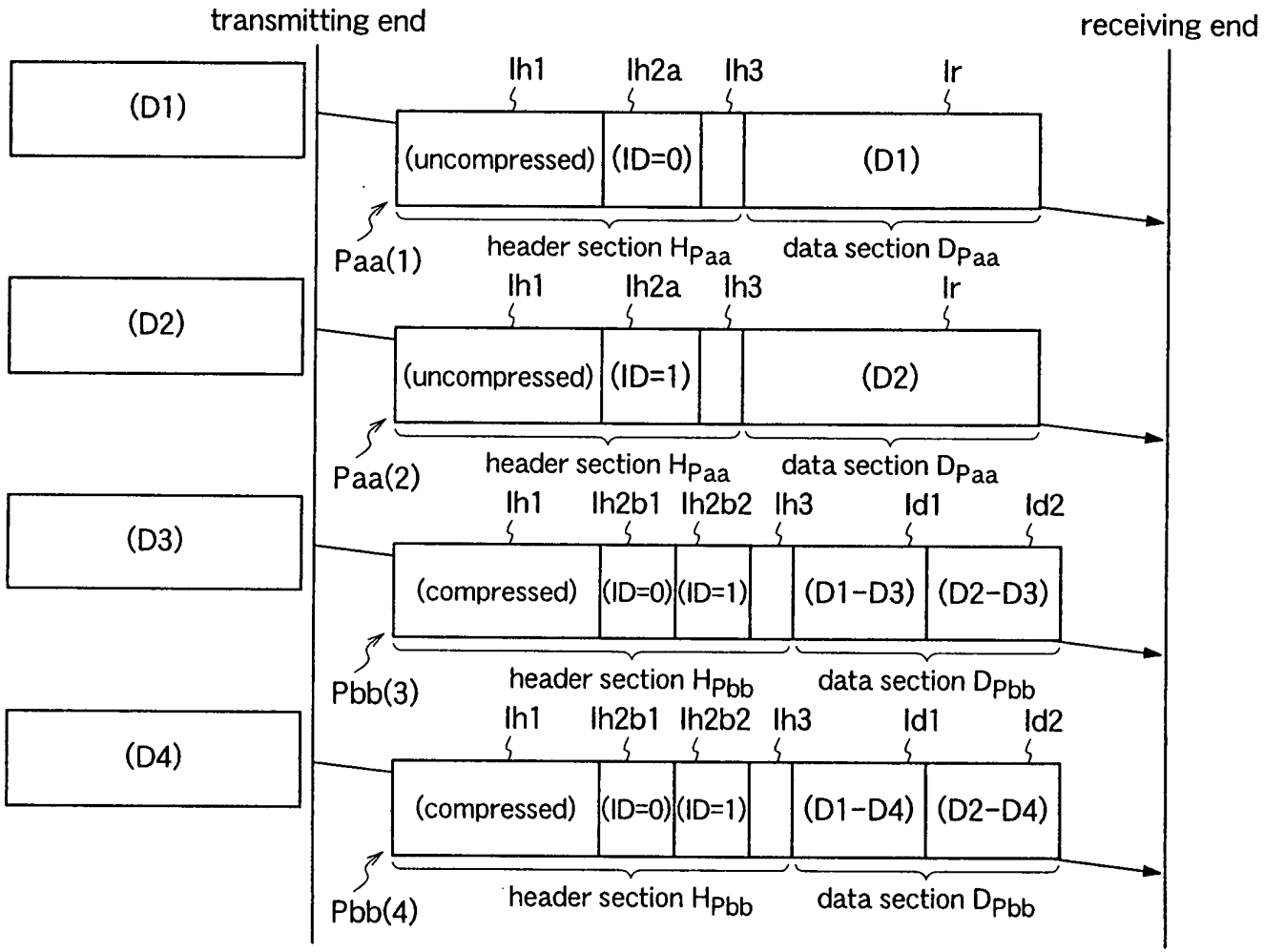

transmitting end
receiving end
(D1)
(D2)
(D3)
(D4)
lh1
lh2a
lh3
lr
(uncompressed)
(ID=0)
(D1)
Paa(1)
header section H_{Paa}
data section D_{Paa}
(ID=1)
(D2)
Paa(2)
lh2b1
lh2b2
ld1
ld2
(compressed)
(D1-D3)
(D2-D3)
Pbb(3)
header section H_{Pbb}
data section D_{Pbb}
(D1-D4)
(D2-D4)
Pbb(4)

Fig.10 (a)

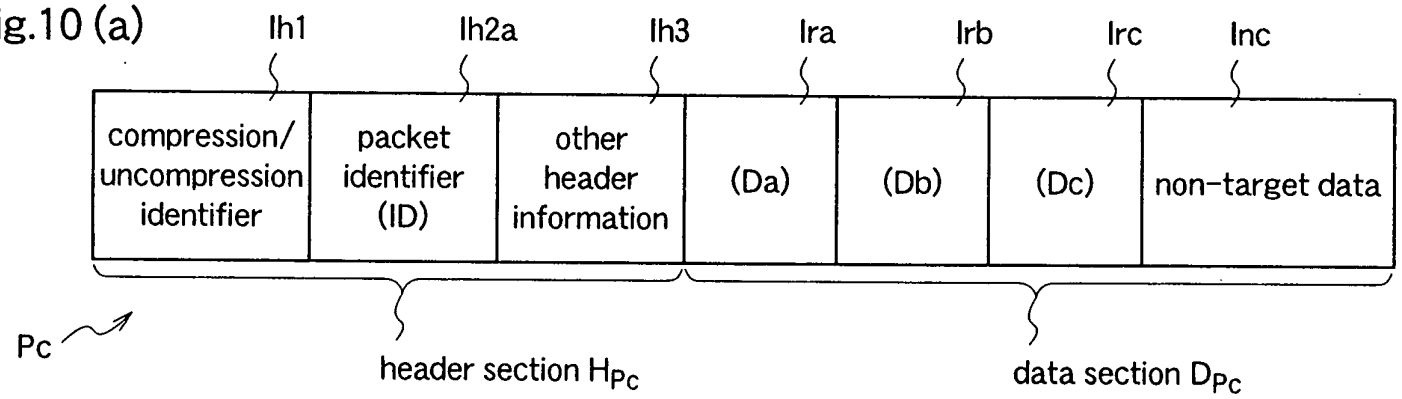


Fig.10 (b)

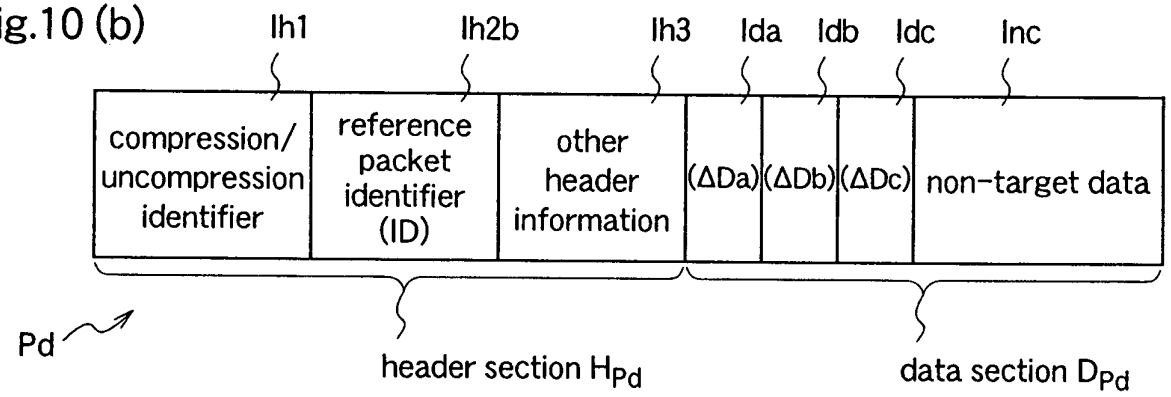


Fig.11 (a)

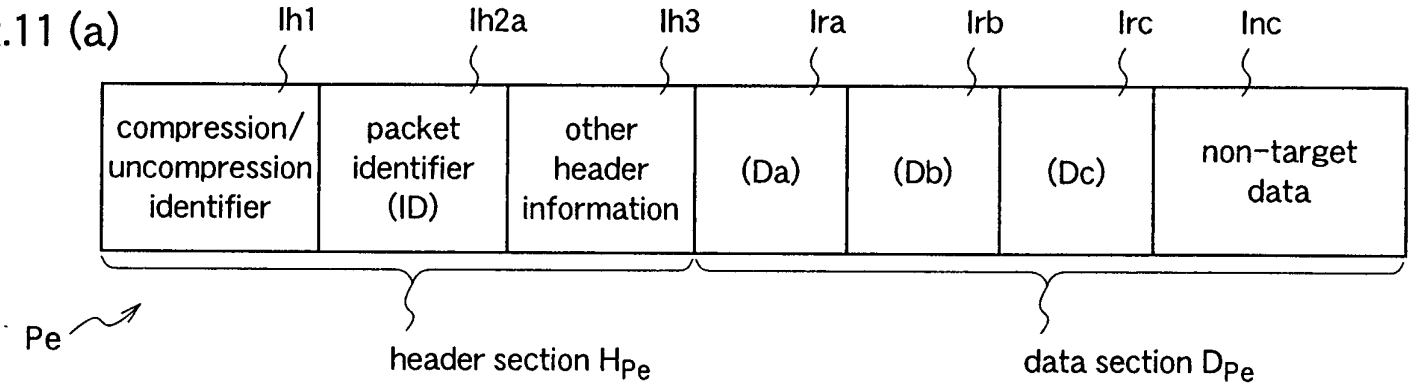


Fig.11 (b)

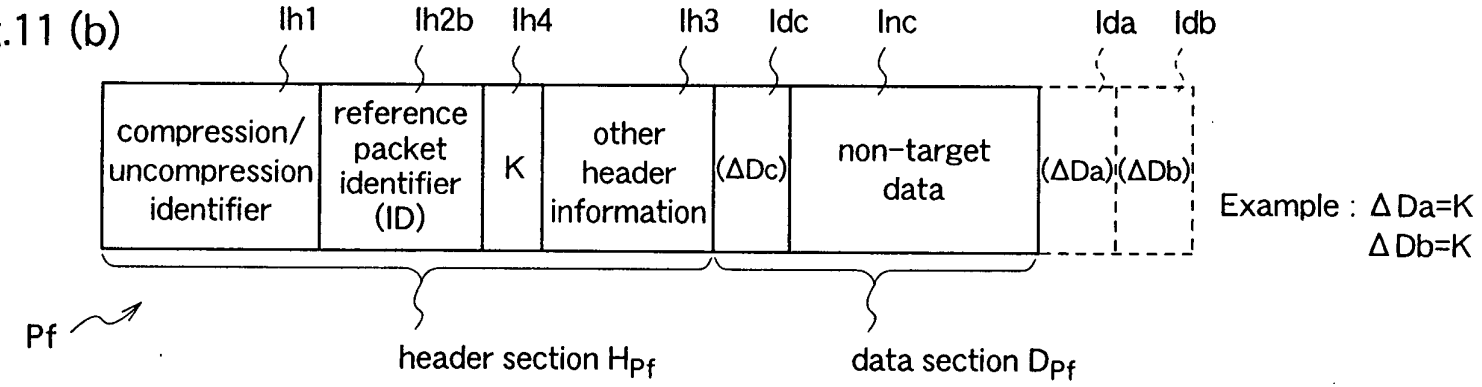


Fig.12

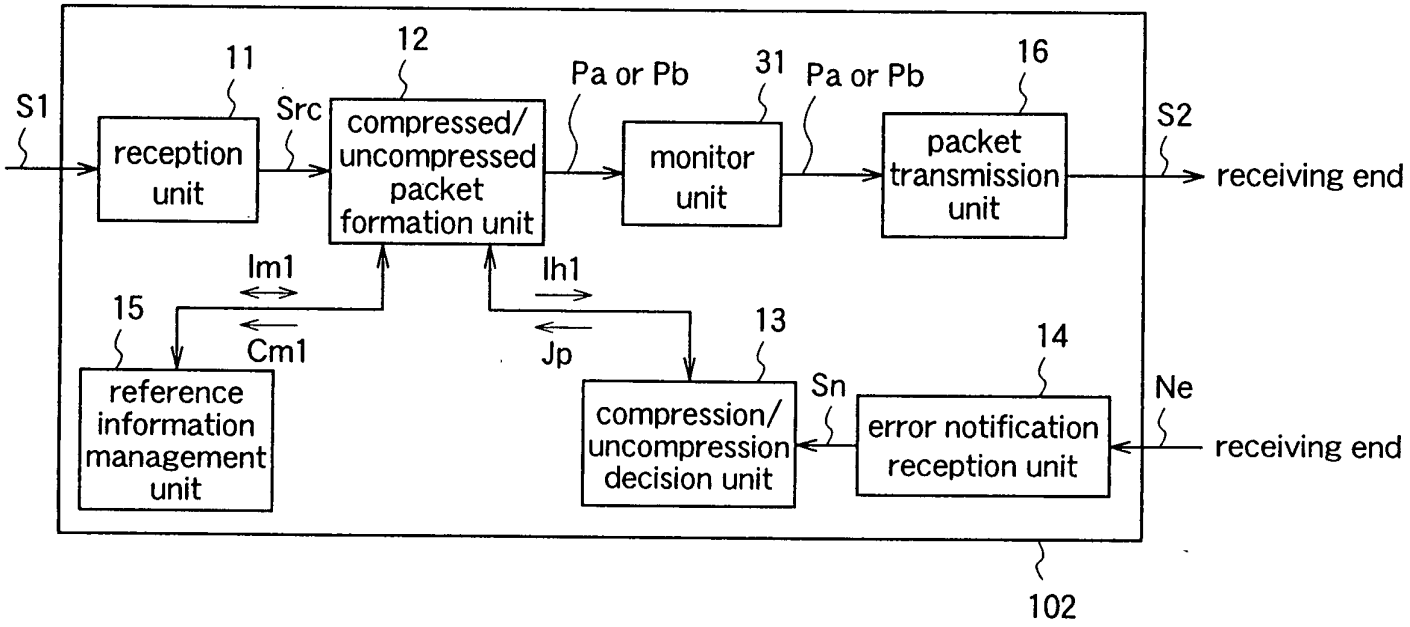

S1
11
reception unit
Src
12
compressed/ uncompressed packet formation unit
Pa or Pb
31
monitor unit
Pa or Pb
16
packet transmission unit
S2
receiving end
Im1
Cm1
15
reference information management unit
Ih1
Jp
13
compression/ uncompression decision unit
Sn
14
error notification reception unit
Ne
receiving end
102

Fig.13

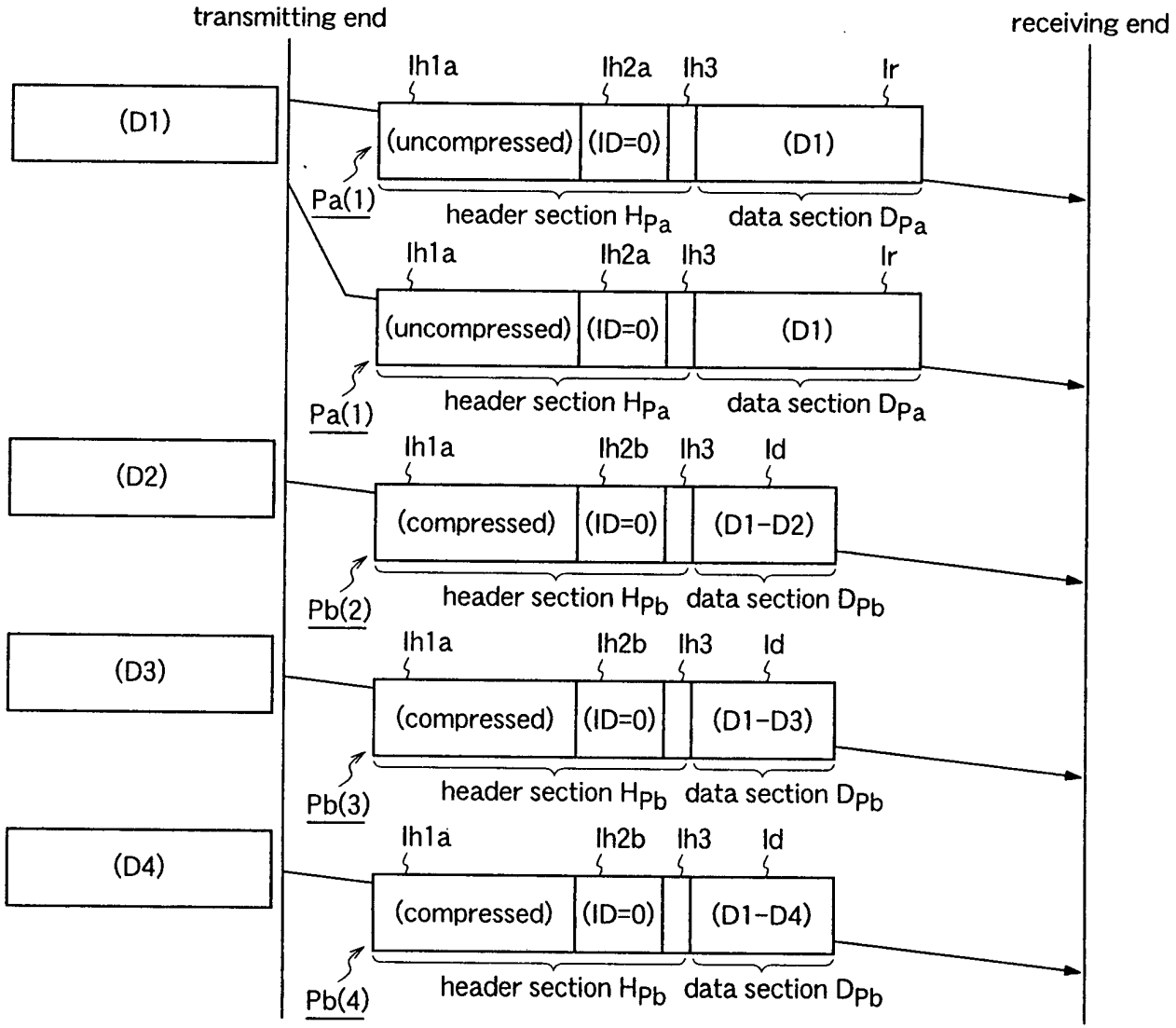

transmitting end
receiving end
(D1)
(D2)
(D3)
(D4)
Ih1a
Ih2a
Ih2b
Ih3
Ir
Id
(uncompressed)
(compressed)
(ID=0)
(D1)
(D1-D2)
(D1-D3)
(D1-D4)
Pa(1)
Pb(2)
Pb(3)
Pb(4)
header section H_{Pa}
data section D_{Pa}
header section H_{Pb}
data section D_{Pb}

Fig.14

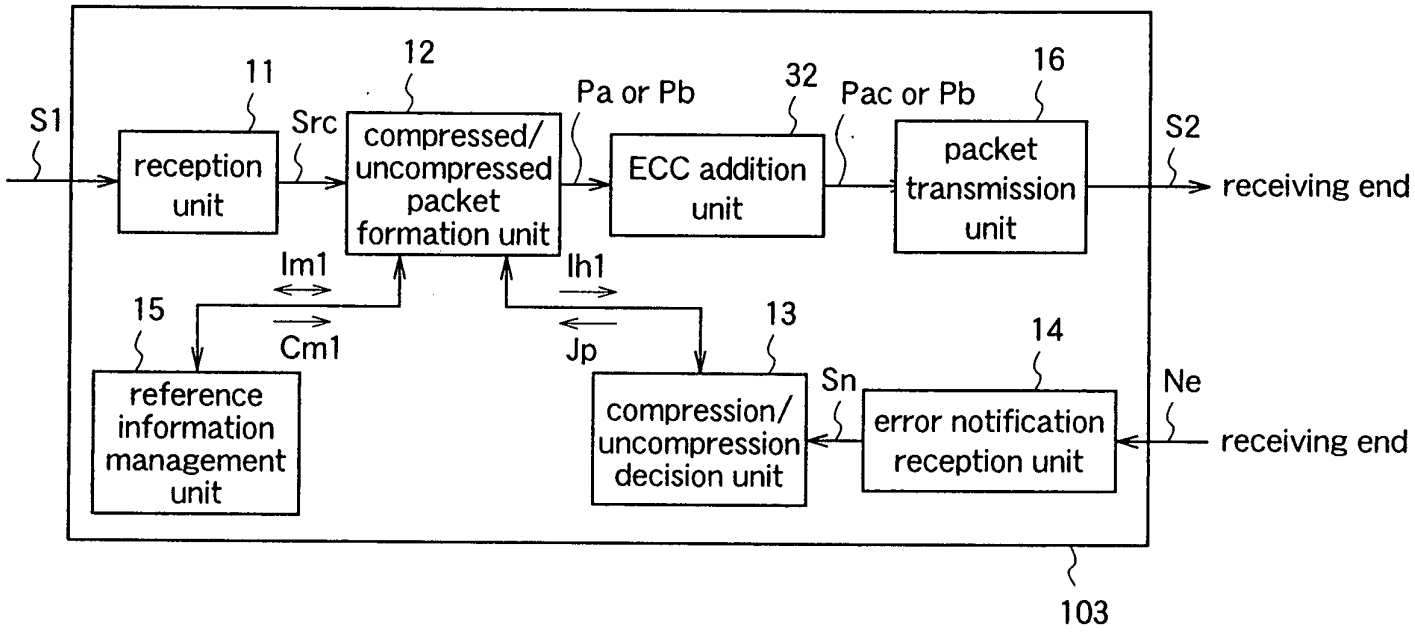

S1
11
reception unit
Src
12
compressed/ uncompressed packet formation unit
Pa or Pb
32
ECC addition unit
Pac or Pb
16
packet transmission unit
S2
receiving end
Im1
Cm1
Ih1
Jp
15
reference information management unit
13
compression/ uncompression decision unit
Sn
14
error notification reception unit
Ne
receiving end
103

Fig.15

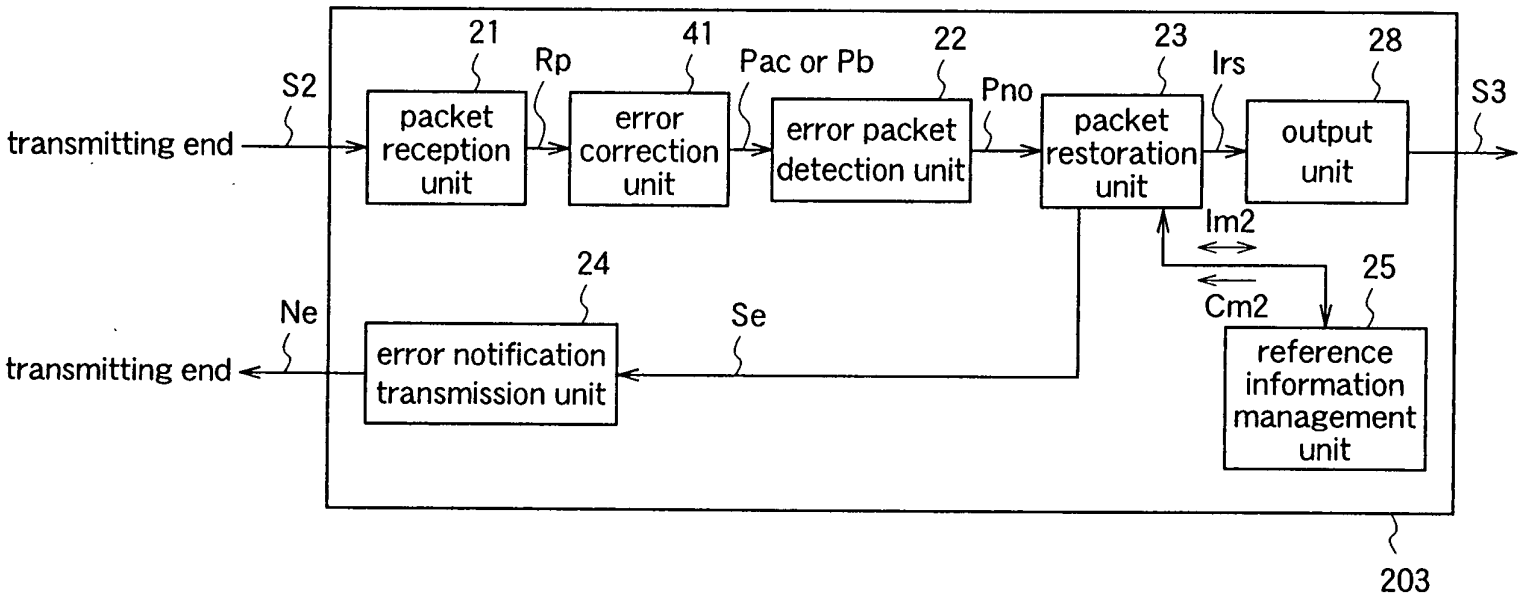

transmitting end
S2
21
packet reception unit
Rp
41
error correction unit
Pac or Pb
22
error packet detection unit
Pno
23
packet restoration unit
Irs
28
output unit
S3
Im2
Cm2
25
reference information management unit
24
error notification transmission unit
Se
Ne
transmitting end
203

Fig.16

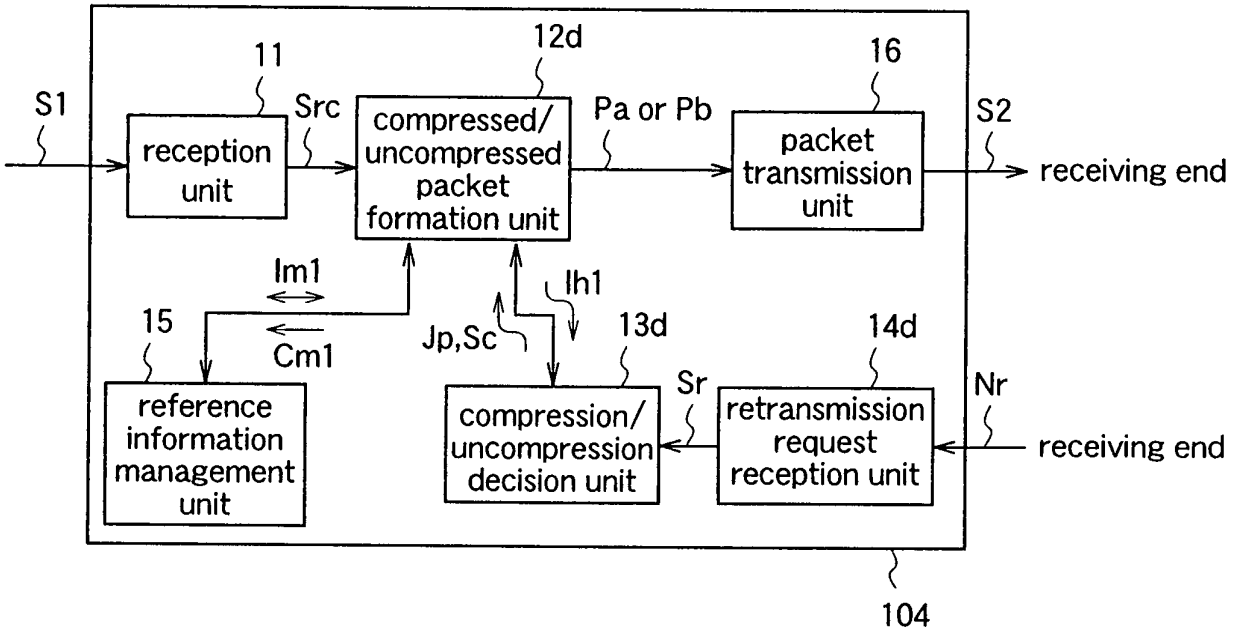

S1
11
reception unit
Src
12d
compressed/ uncompressed packet formation unit
Pa or Pb
16
packet transmission unit
S2
receiving end
Im1
Cm1
15
reference information management unit
Jp,Sc
Ih1
13d
compression/ uncompression decision unit
Sr
14d
retransmission request reception unit
Nr
receiving end
104

Fig.17

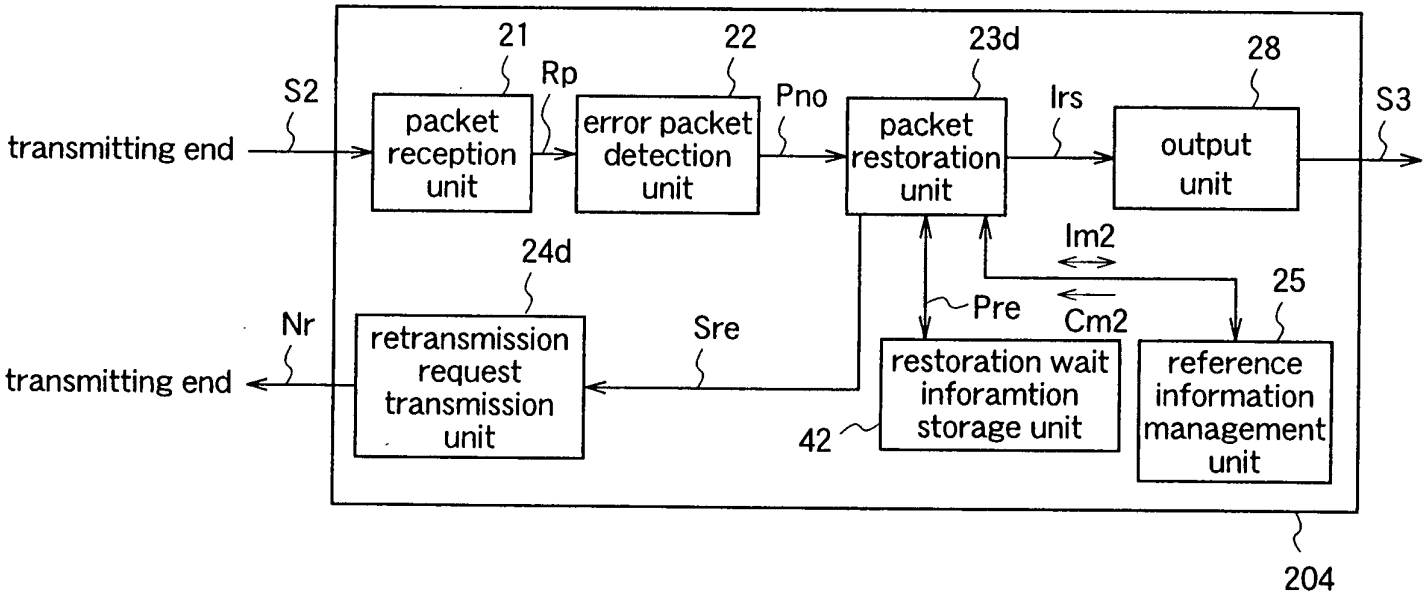

transmitting end
S2
21
packet reception unit
Rp
22
error packet detection unit
Pno
23d
packet restoration unit
Irs
28
output unit
S3
Im2
25
Pre
Cm2
reference information management unit
restoration wait inforamtion storage unit
42
24d
retransmission request transmission unit
Sre
Nr
transmitting end
204

Fig.18 (a)

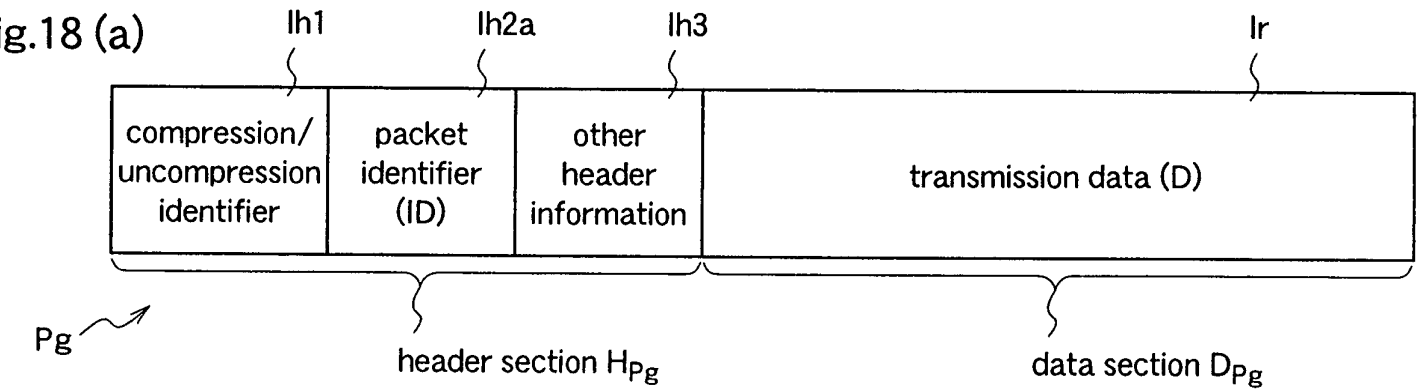


Fig.18 (b)

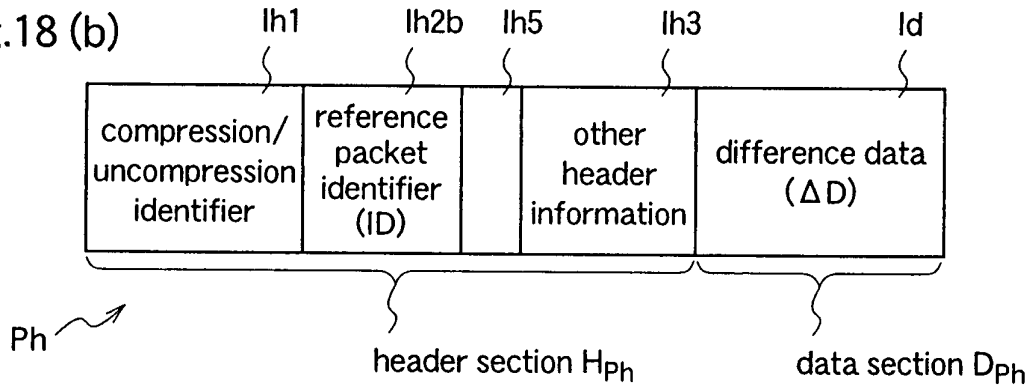


Fig.19

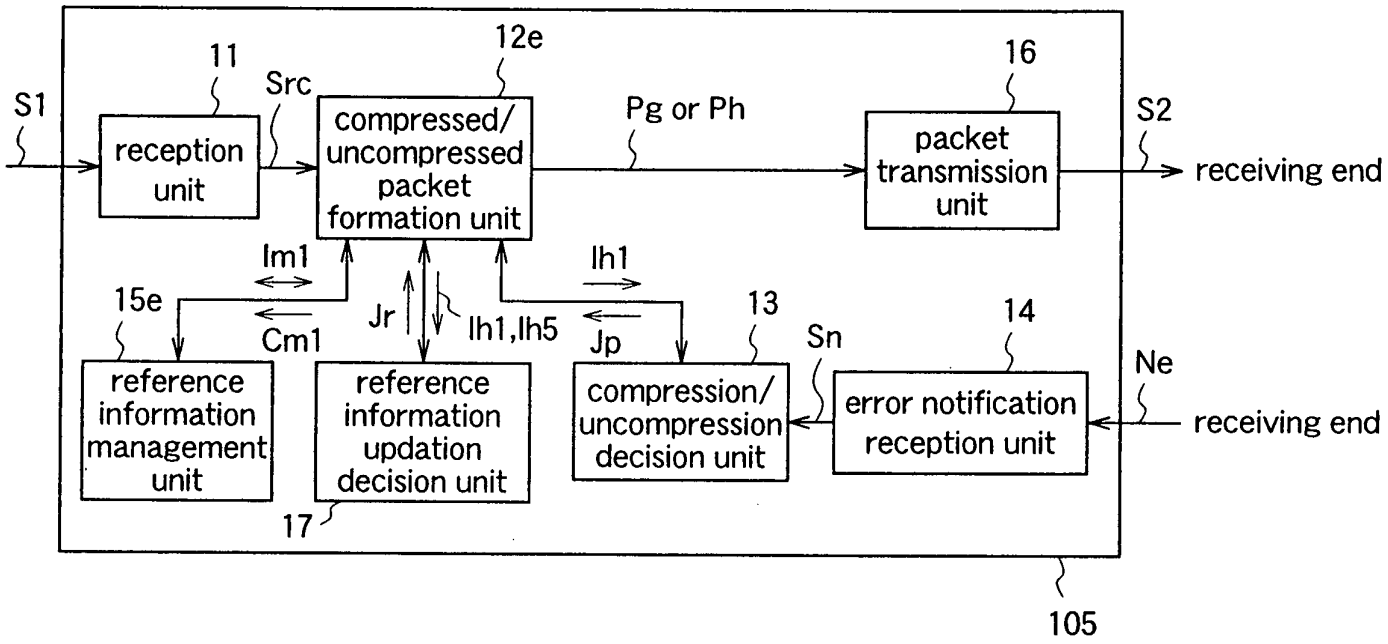

S1
11
reception unit
Src
12e
compressed/ uncompressed packet formation unit
Pg or Ph
16
packet transmission unit
S2
receiving end
Im1
Cm1
15e
reference information management unit
Jr
Ih1,Ih5
Ih1
Jp
13
compression/ uncompression decision unit
Sn
14
error notification reception unit
Ne
receiving end
reference information updation decision unit
17
105

Fig.20

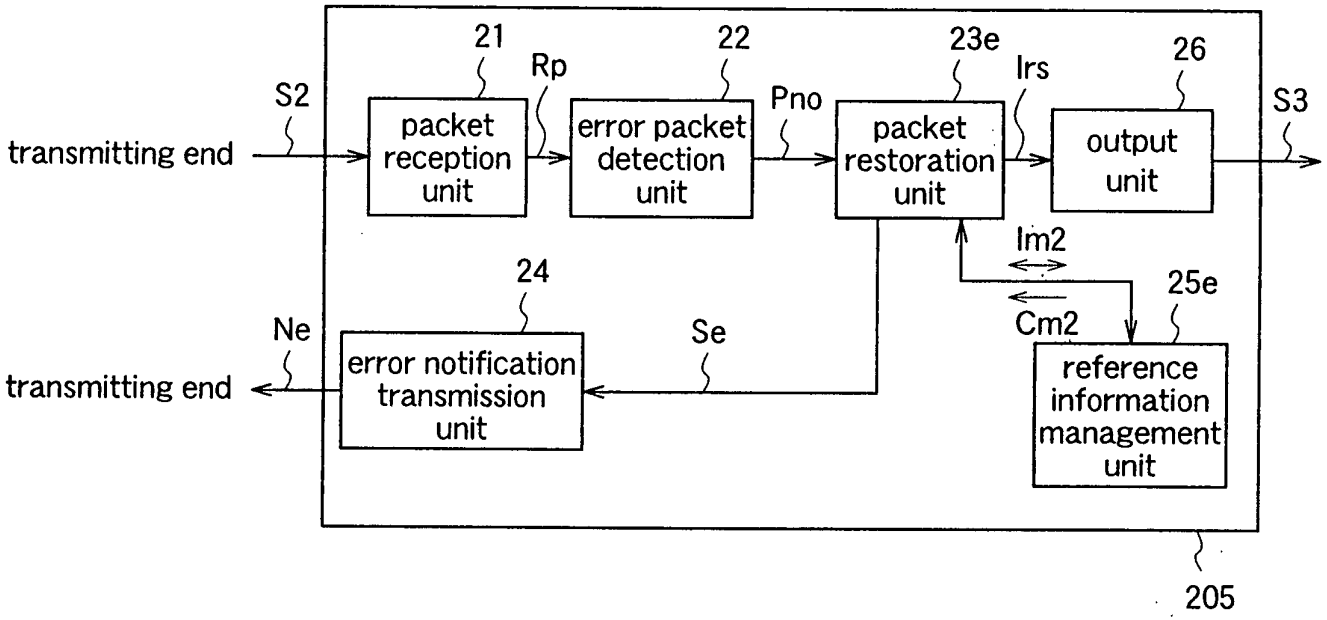

transmitting end
S2
21
packet reception unit
Rp
22
error packet detection unit
Pno
23e
packet restoration unit
Irs
26
output unit
S3
Im2
Cm2
25e
reference information management unit
24
error notification transmission unit
Ne
Se
transmitting end
205

Fig.21

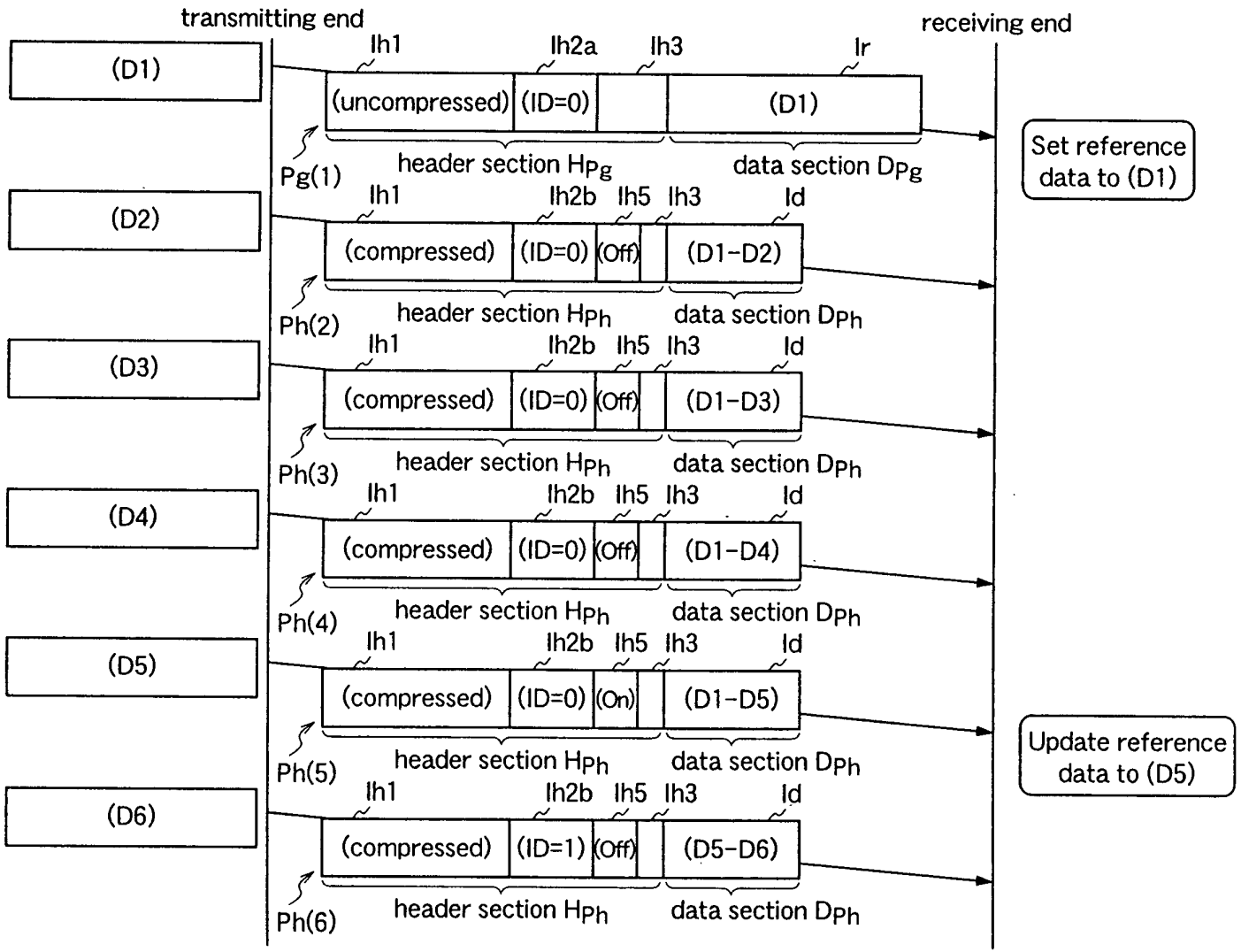

transmitting end
receiving end
(D1)
(D2)
(D3)
(D4)
(D5)
(D6)
Ih1
Ih2a
Ih3
Ir
(uncompressed)
(ID=0)
(D1)
Pg(1)
header section HPg
data section DPg
Set reference data to (D1)
Ih2b
Ih5
Id
(compressed)
(Off)
(D1-D2)
Ph(2)
header section HPh
data section DPh
(D1-D3)
Ph(3)
(D1-D4)
Ph(4)
(On)
(D1-D5)
Ph(5)
Update reference data to (D5)
(ID=1)
(D5-D6)
Ph(6)

Fig.22

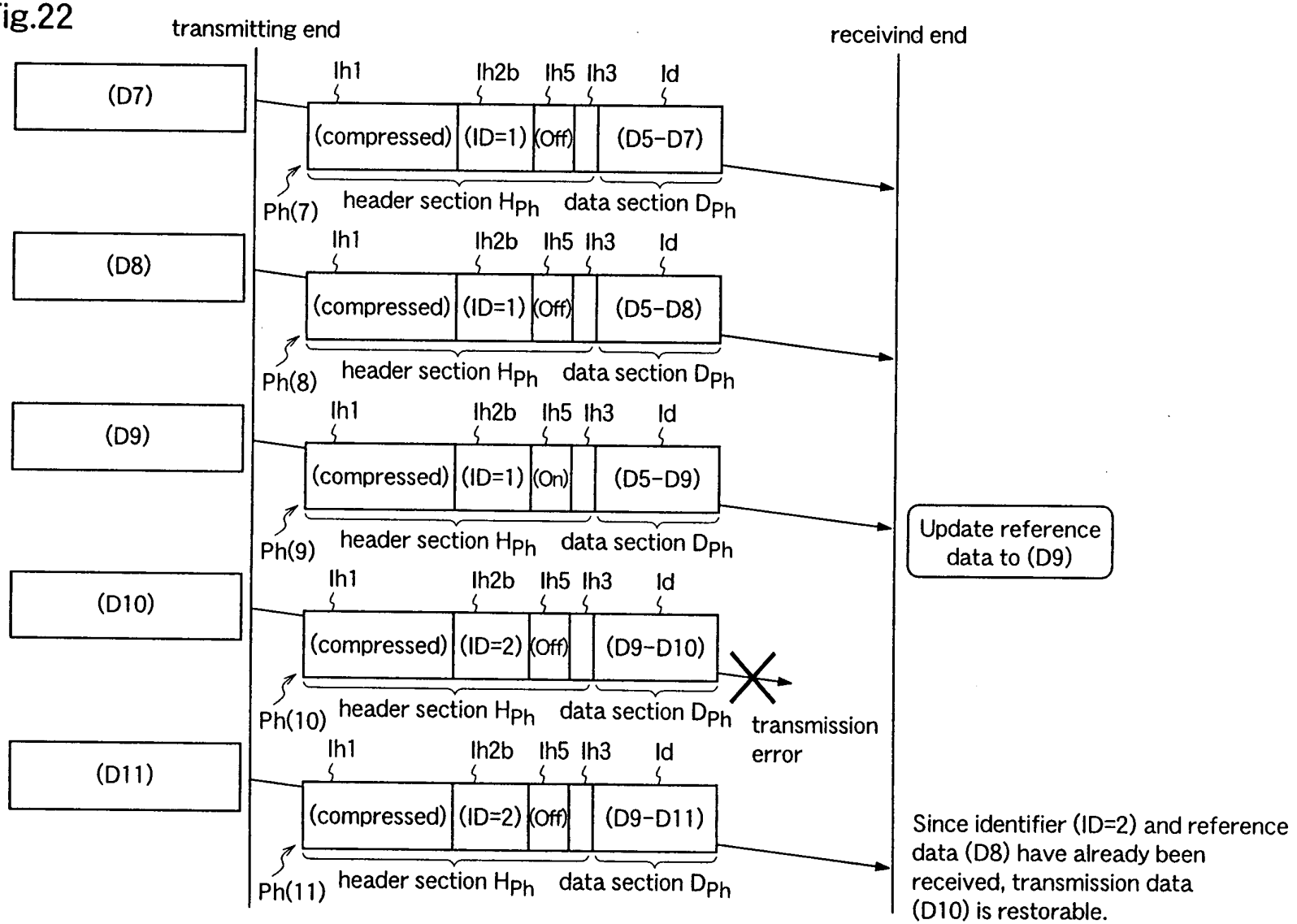

transmitting end
receivind end
(D7)
(D8)
(D9)
(D10)
(D11)
Ih1
Ih2b
Ih5
Ih3
Id
(compressed)
(ID=1)
(Off)
(On)
(ID=2)
(D5-D7)
(D5-D8)
(D5-D9)
(D9-D10)
(D9-D11)
Ph(7)
Ph(8)
Ph(9)
Ph(10)
Ph(11)
header section H_{Ph}
data section D_{Ph}
Update reference data to (D9)
transmission error
Since identifier (ID=2) and reference data (D8) have already been received, transmission data (D10) is restorable.

Fig.23

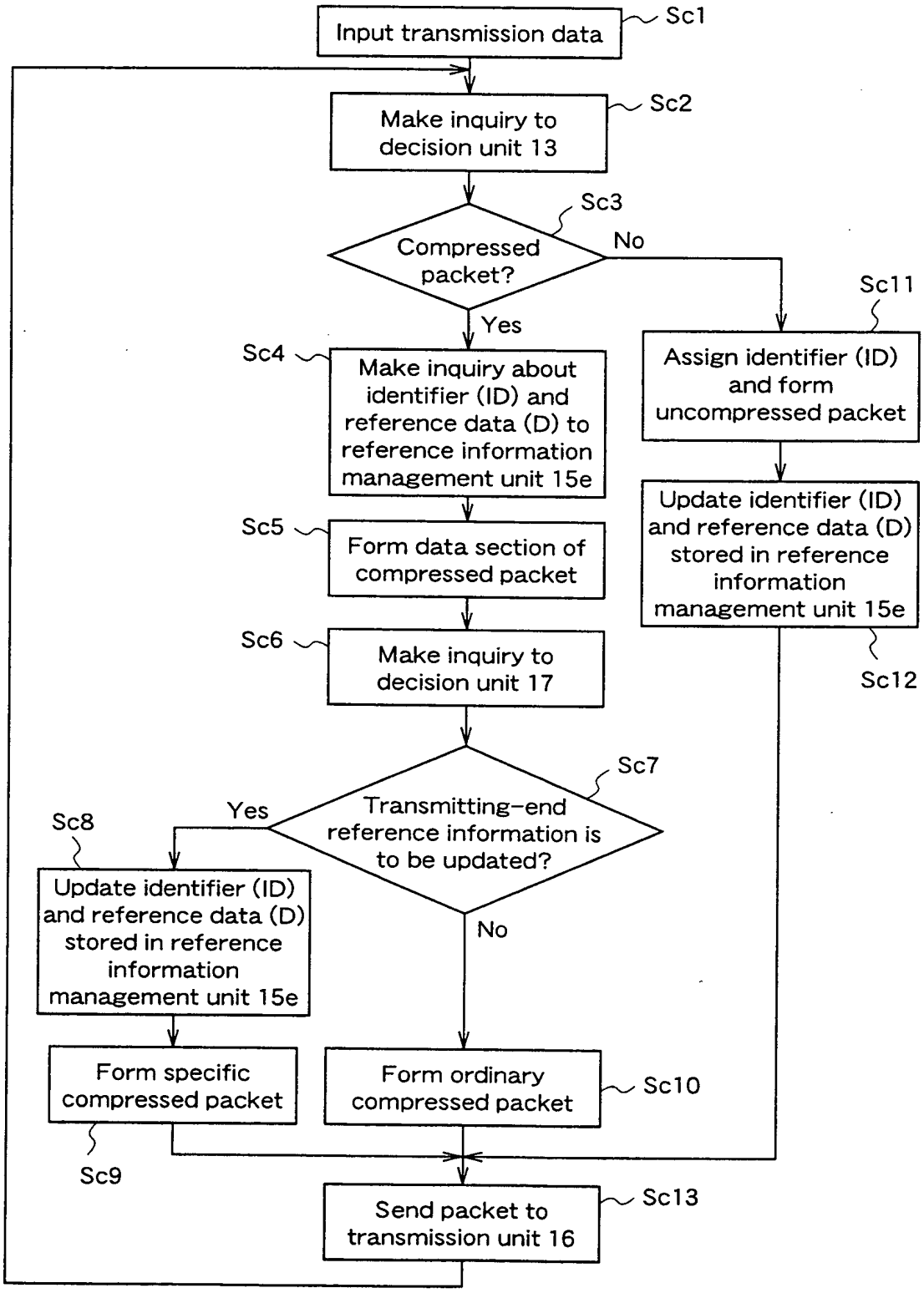

Input transmission data
Sc1
Make inquiry to decision unit 13
Sc2
Compressed packet?
Sc3
No
Yes
Sc11
Assign identifier (ID) and form uncompressed packet
Sc4
Make inquiry about identifier (ID) and reference data (D) to reference information management unit 15e
Update identifier (ID) and reference data (D) stored in reference information management unit 15e
Sc12
Sc5
Form data section of compressed packet
Sc6
Make inquiry to decision unit 17
Sc7
Transmitting-end reference information is to be updated?
Yes
Sc8
No
Update identifier (ID) and reference data (D) stored in reference information management unit 15e
Form specific compressed packet
Sc9
Form ordinary compressed packet
Sc10
Send packet to transmission unit 16
Sc13

Fig.24

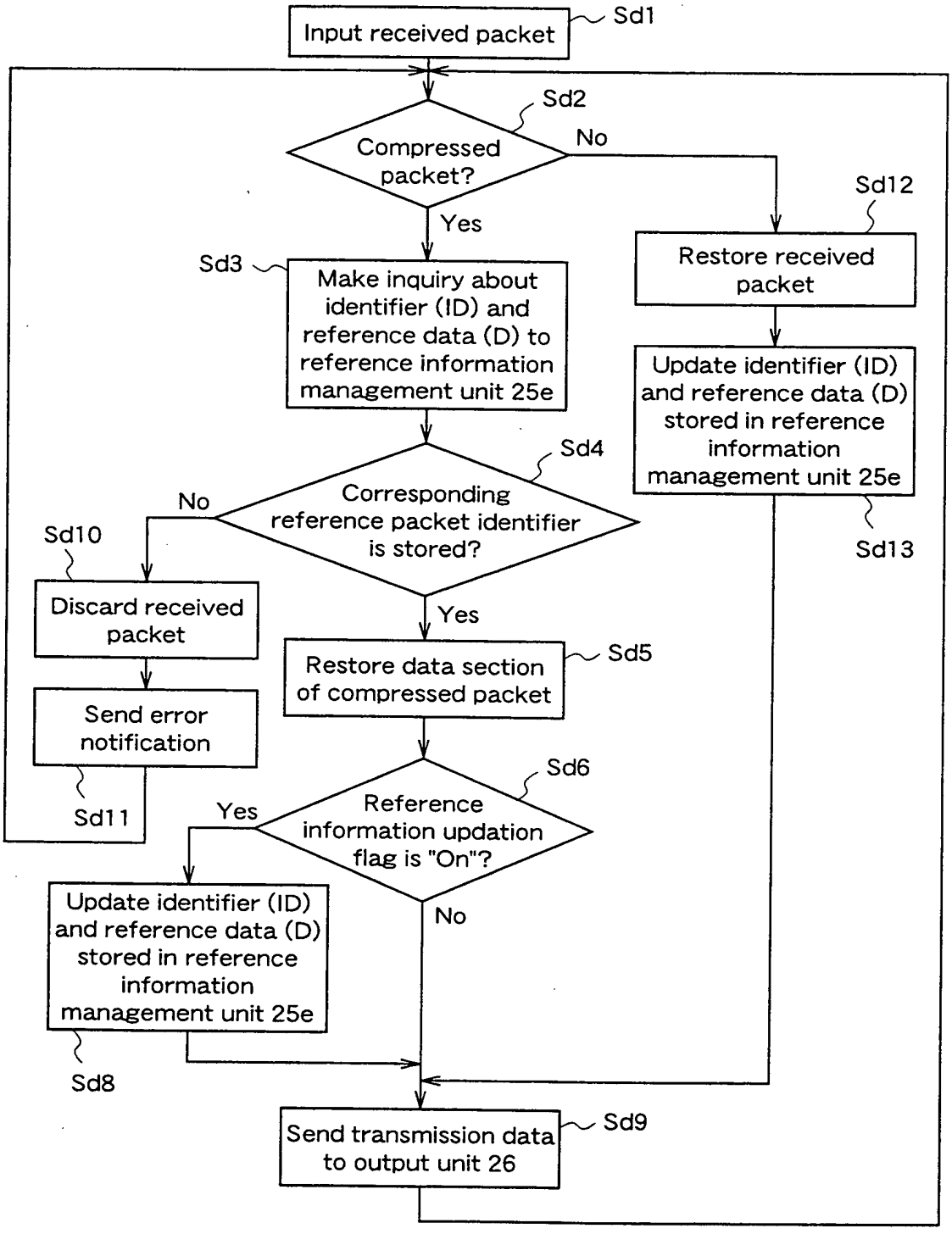

Input received packet
Sd1
Compressed packet?
Sd2
No
Yes
Sd12
Restore received packet
Sd3
Make inquiry about identifier (ID) and reference data (D) to reference information management unit 25e
Update identifier (ID) and reference data (D) stored in reference information management unit 25e
Sd13
Sd4
Corresponding reference packet identifier is stored?
No
Sd10
Yes
Discard received packet
Restore data section of compressed packet
Sd5
Send error notification
Sd11
Sd6
Reference information updation flag is "On"?
Yes
No
Update identifier (ID) and reference data (D) stored in reference information management unit 25e
Sd8
Send transmission data to output unit 26
Sd9

Fig.25 (a)

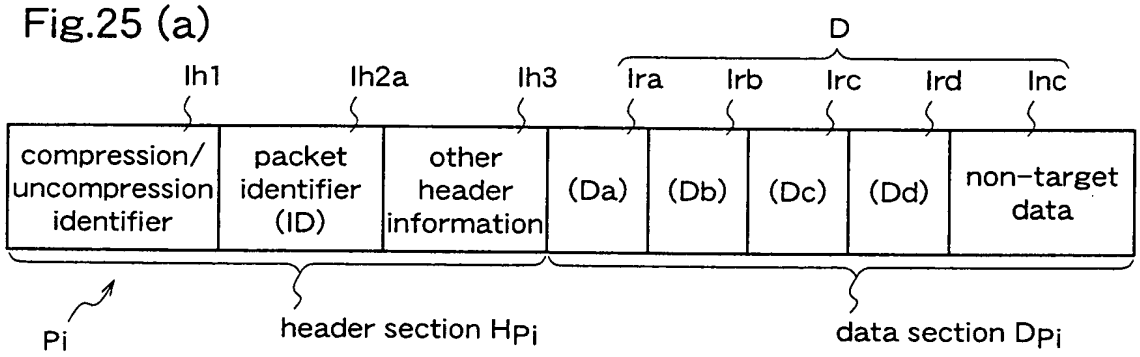


Fig.25 (b)

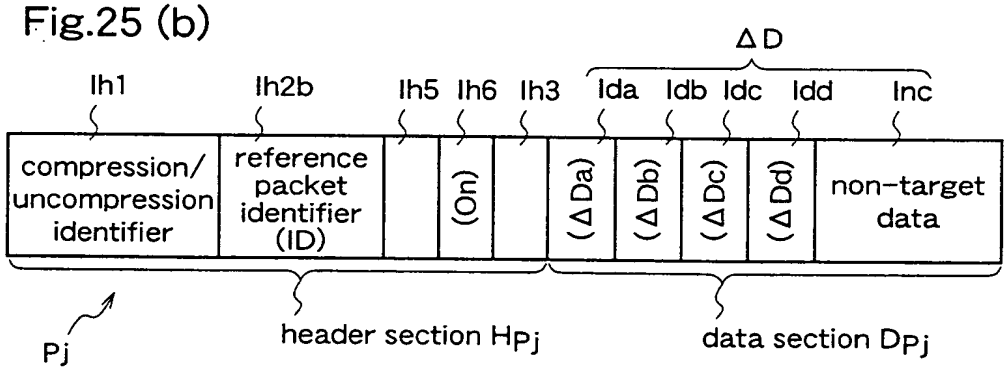


Fig.25 (c)

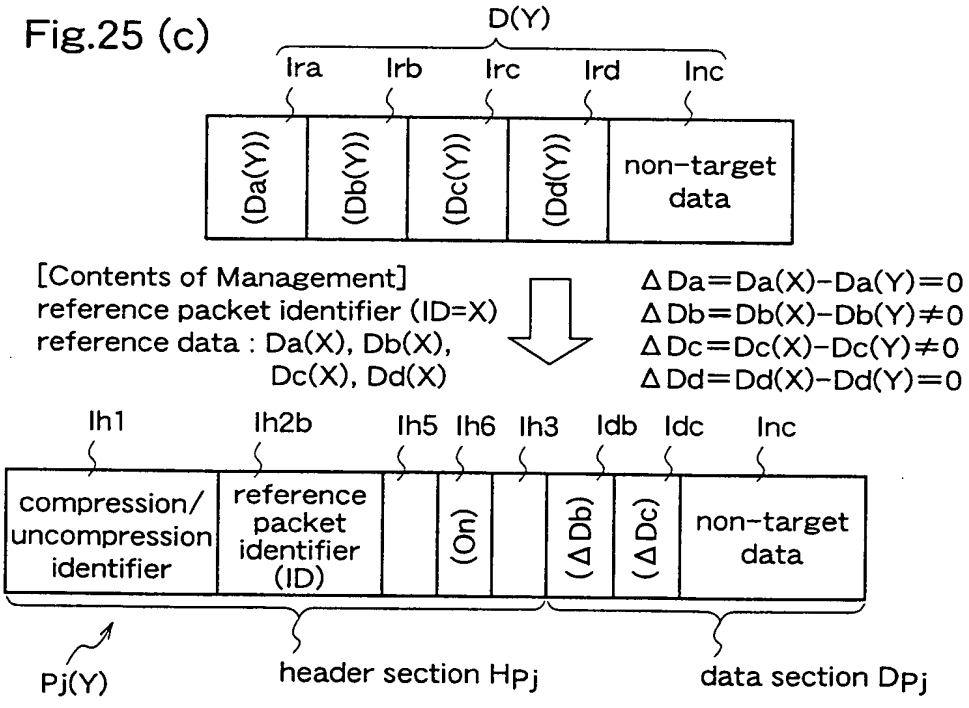


Fig.26

Example : ΔDa no difference data exists
ΔDb difference data exists
ΔDc difference data exists
ΔDd no difference data exists

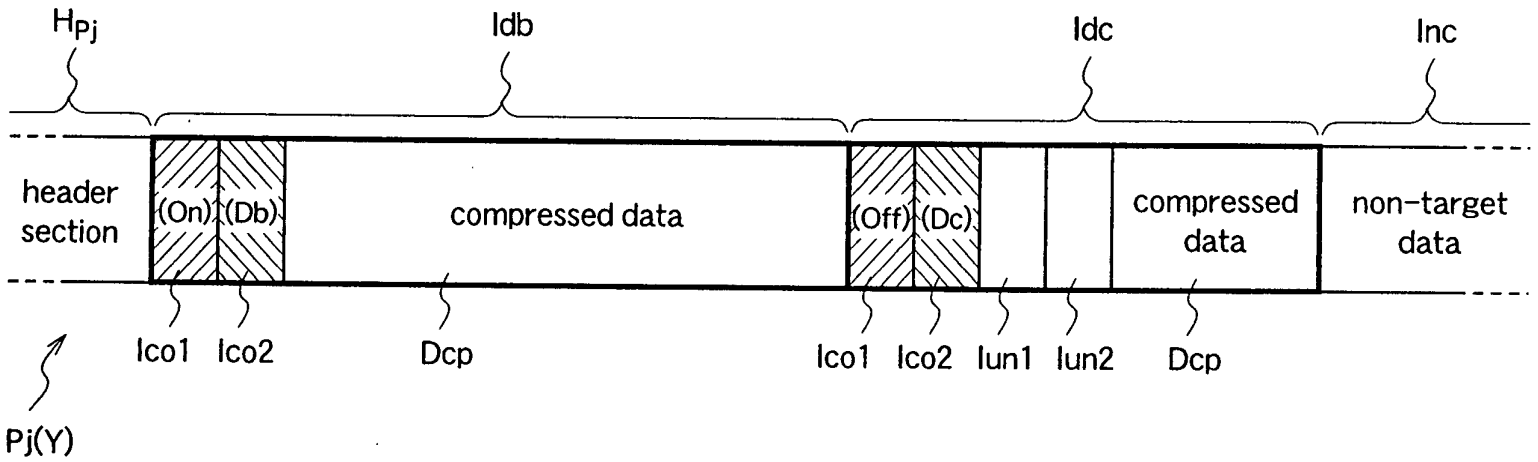


Fig.27 (a)

	No.	RTP (SN) 16bit data	RTP (TS) 32bit data	IPv4 (ID) 16bit data	UDP (Prot No.) 32bit data	…
		K1	K2	K3	K4	Inc
(D1)	1	30001	50	1000	4096/4098	…
(D2)	2	30002	100	1001	4096/4098	…
(D3)	3	30003	150	1002	4096/4098	…
(D4)	4	30005	250	1003	4096/4098	…
(D5)	5	30006	300	1004	4096/4098	…

(D)

Total: 96bit

Fig.27 (b)

	compression/uncompression 1bit	identifier (ID) 5bit	reference information updation flag 1bit	difference existence flag 1bit	RTP (SN)	RTP (TS)	IPv4 (ID)	UDP Port	…	
	Ih1	Ih2a,Ih2b	Ih5	Ih6	Ira,Ida	Irb,Idb	Irc,Idc	Ird,Idd	Inc	
	1 (uncompressed)	00000 5bit	—	—	30001 16bit data	50 32bit data	1000 16bit data	4096/4098 32bit data	…	Pi(1)
	0 (compressed)	00000 5bit	0 (no updation)	1 (presence)	1 8bit data	50 16bit data	1 8bit data	— 0bit	…	Pj(2)
	0 (compressed)	00000 5bit	0 (no updation)	1 (presence)	2 8bit data	100 16bit data	2 8bit data	— 0bit	…	Pj(3)

Pi,Pj

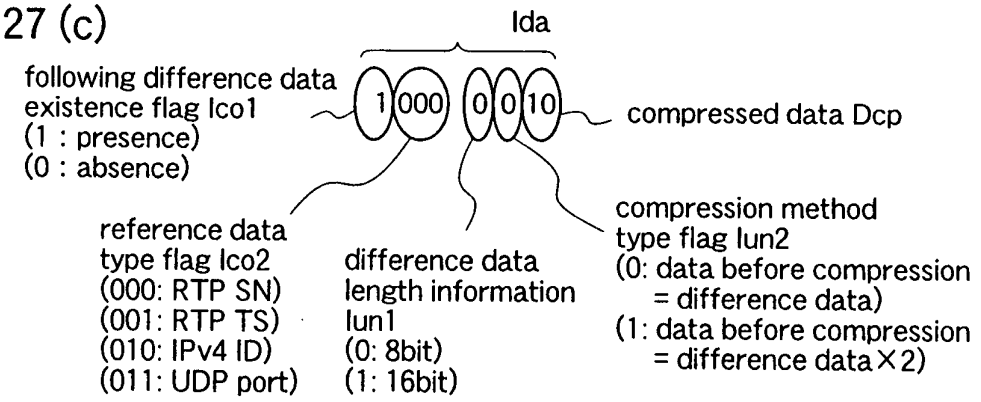
H_{Pi}, H_{Pj}

D_{Pi}, D_{Pj}

Total: 40bit (No.3 data)

RTP: Real Time Protocol
SN: Sequence Number
TS: Time Stamp
IPv4: Internet Protocol Version 4
UDP: User Datagram Protocol

Fig.27 (c)



Prior Art

Fig.28 (a)

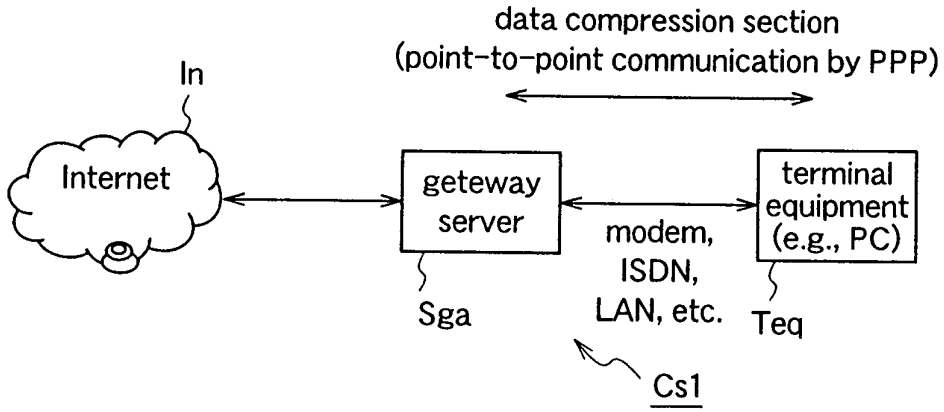
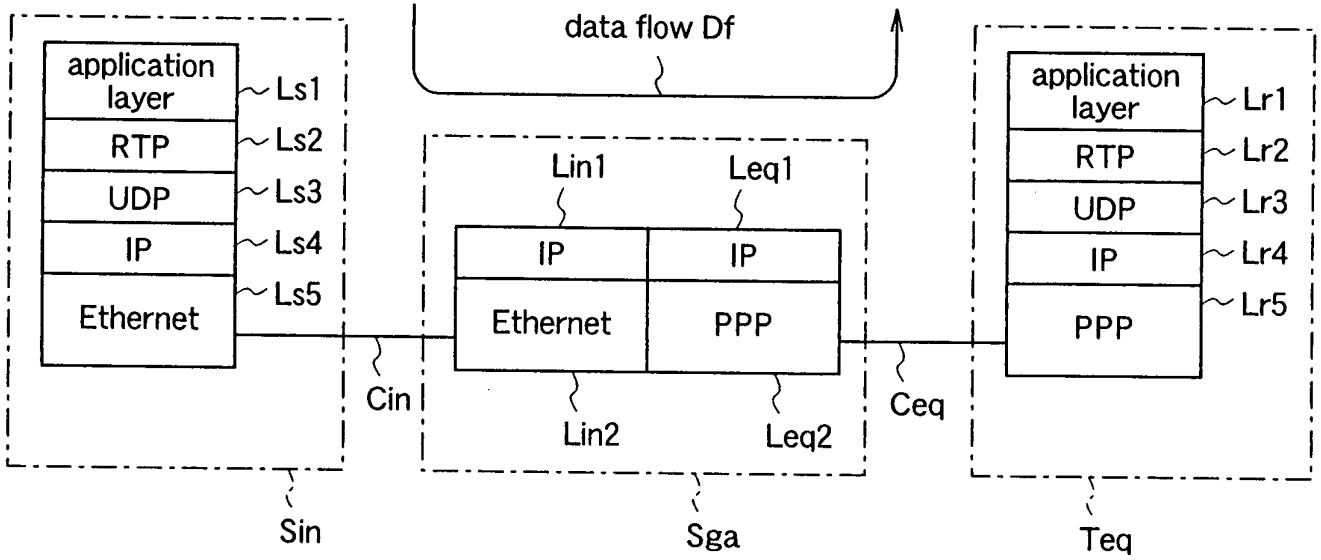


Fig.28 (b)



Prior Art

Fig.29 (a)

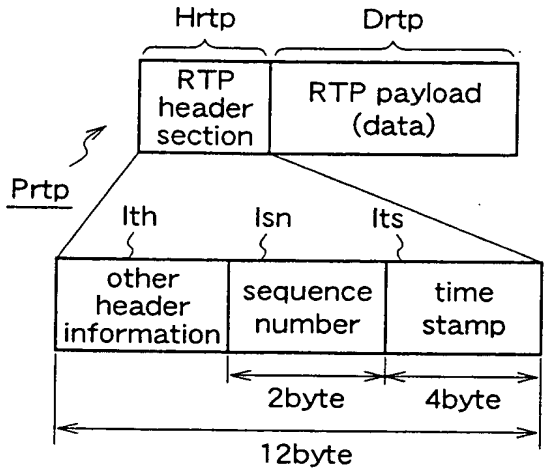


Fig.29 (b)

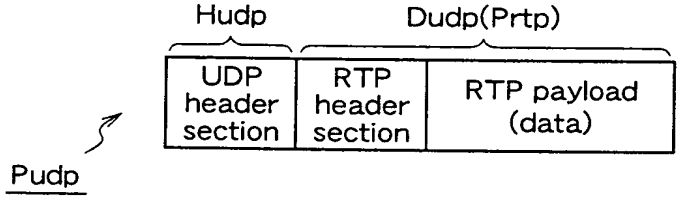


Fig.29 (c)

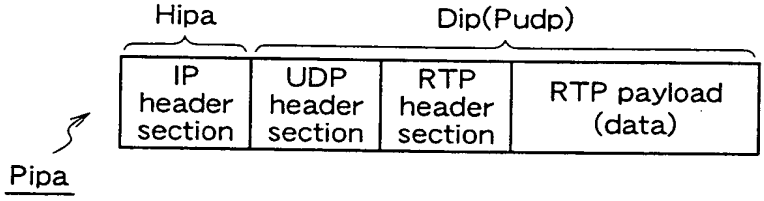


Fig.29 (d)

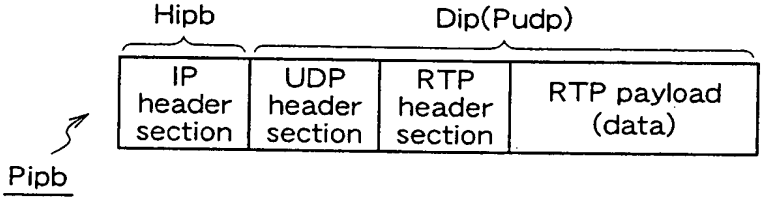
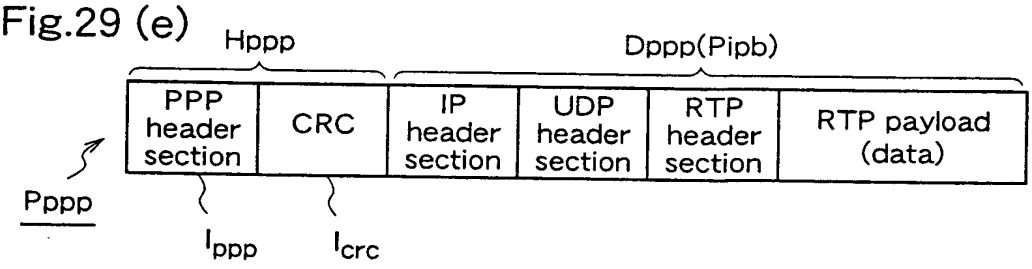


Fig.29 (e)



Prior Art

Fig.30 (a)

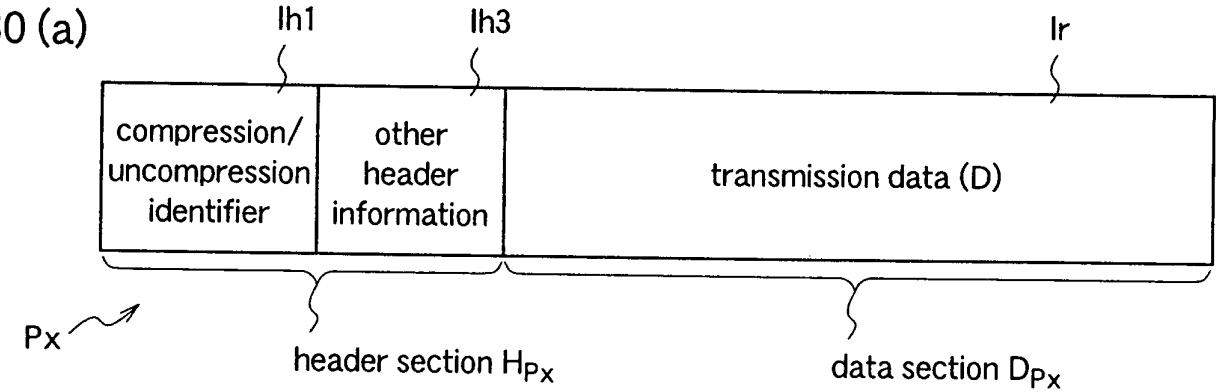


Fig.30 (b)

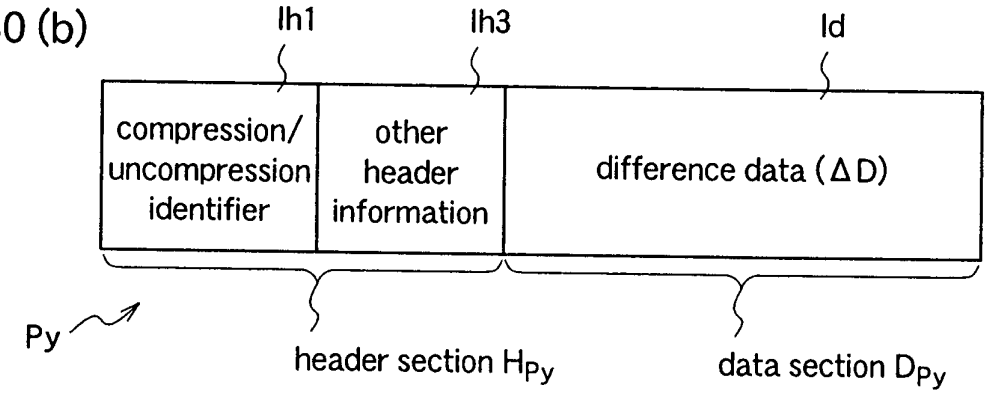


Fig.31 Prior Art

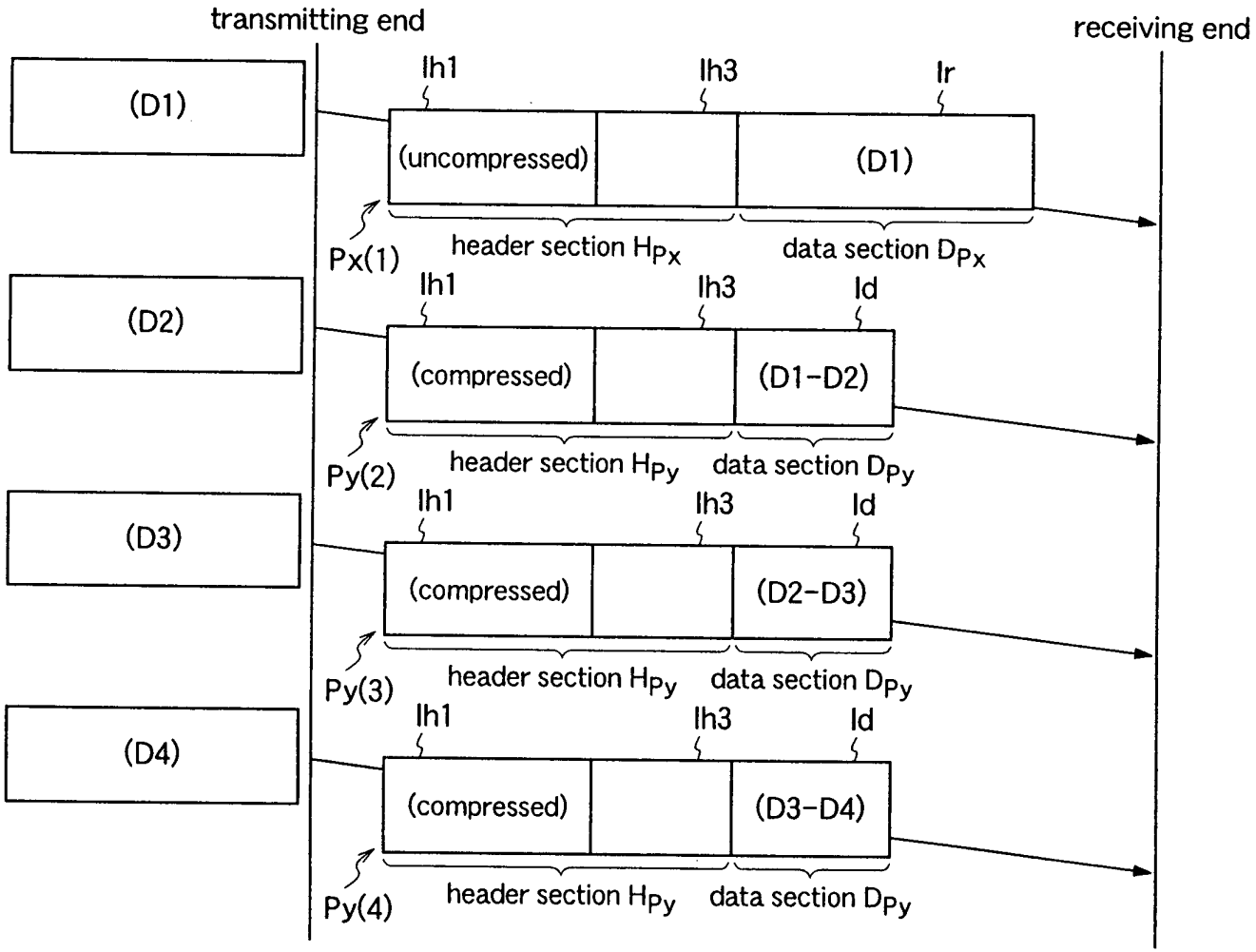
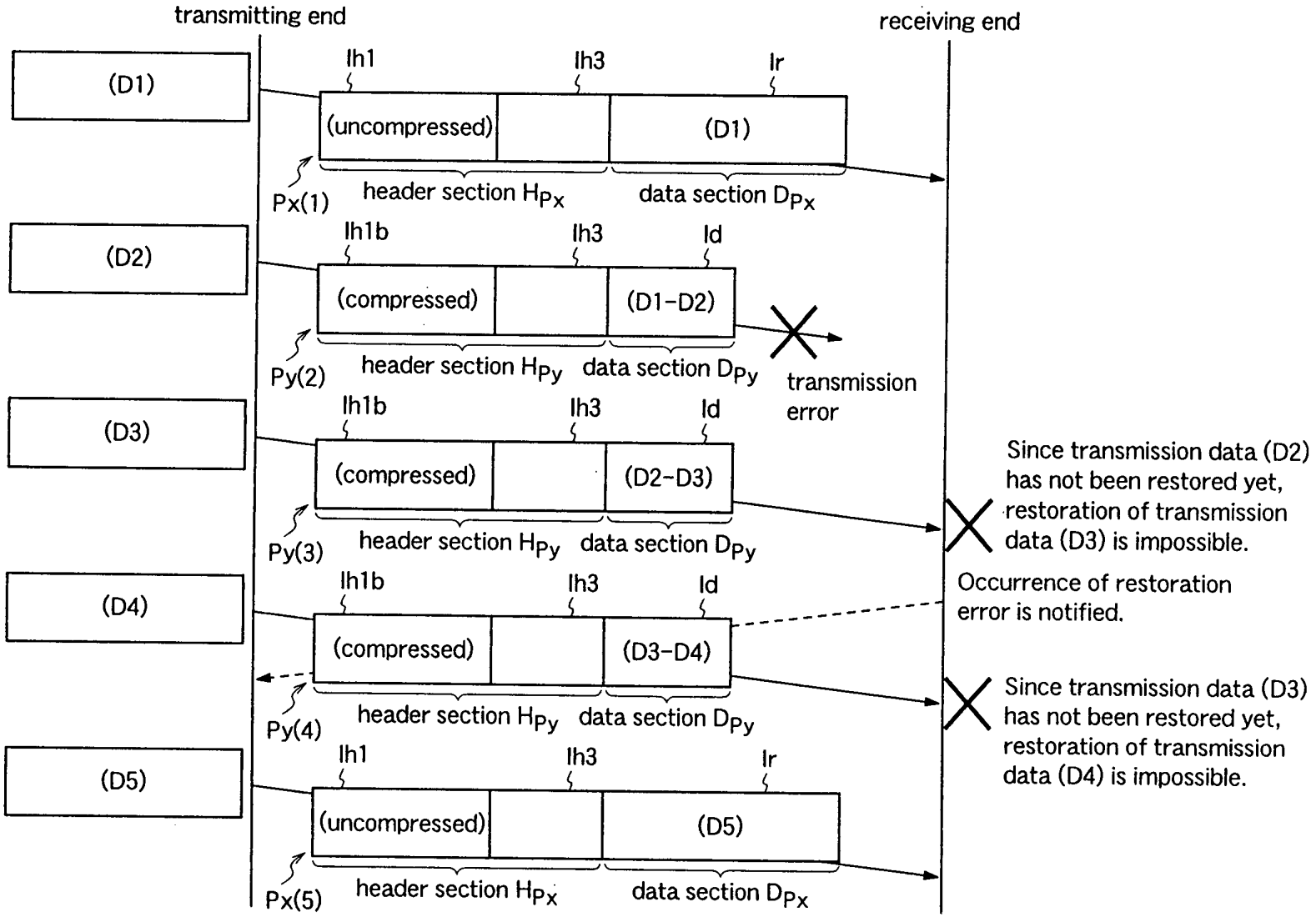


Fig.32 Prior Art



Prior Art

Fig.33 (a)

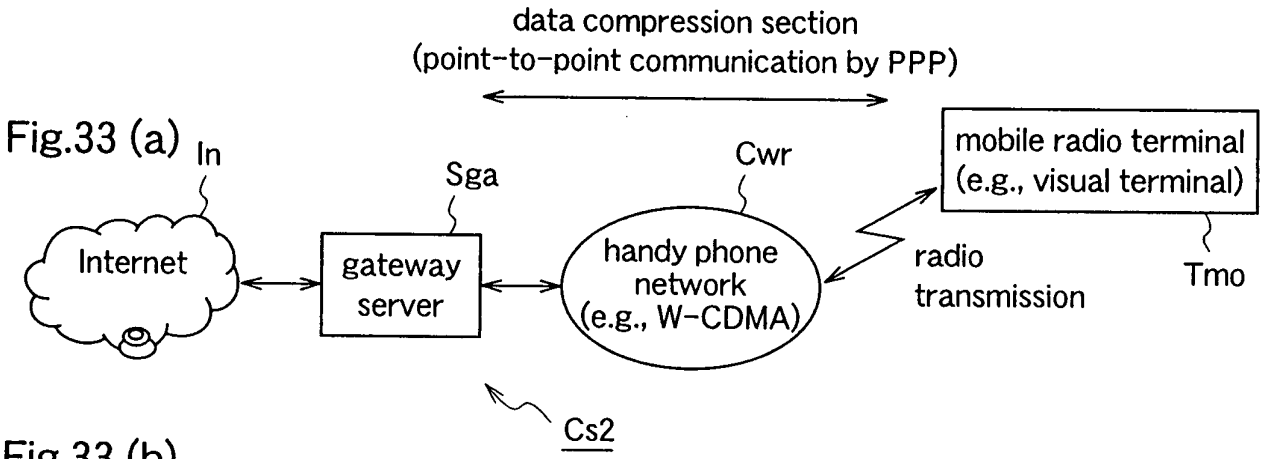
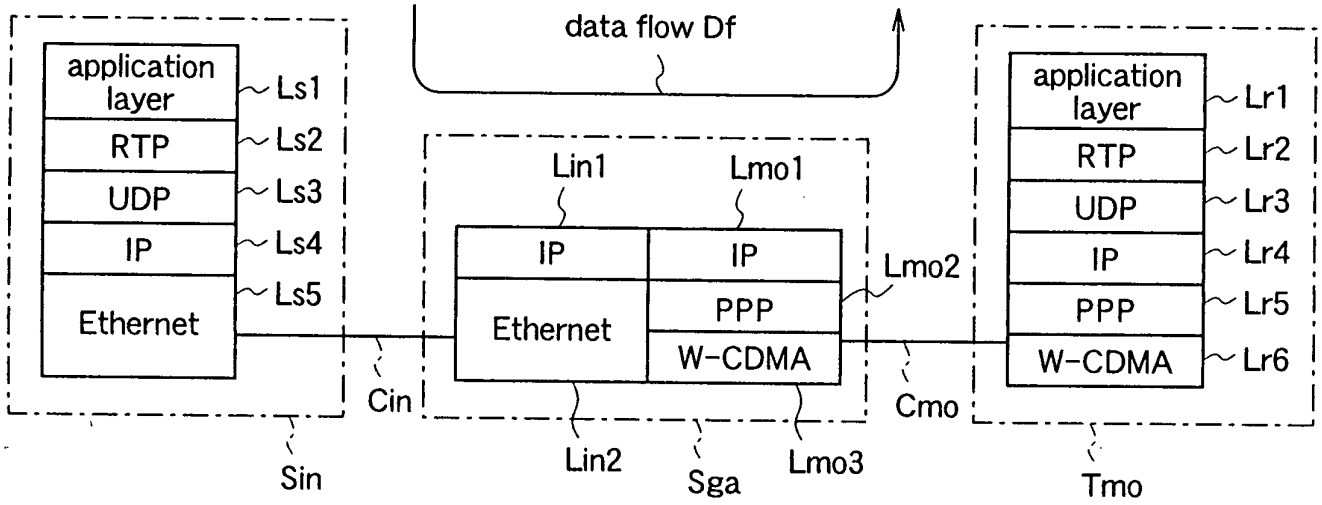



Fig.33 (b)